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United States  
Department of  
Agriculture  
  
Natural  
Resources  
Conservation  
Service

# Washington Basin Outlook Report June 1, 1998





# Basin Outlook Reports and Federal - State - Private Cooperative Snow Surveys

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## *How forecasts are made*

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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# Washington Water Supply Outlook

June 1998

## General Outlook

The trend last month was rain. Precipitation varied from 111% to 212% of average across the state, excluding the North Puget Sound and the Olympic Peninsula basins. They received below normal accumulations. Heavy rainfall in Okanogan, Ferry, Stevens and Pend Oreille counties caused major flooding. Many roads were washed out, leaving people stranded for days. Colville received 2.79 inches of rain in 24 hours on May 27th, as reported by the National Weather Service. Colville's previous 24-hour precipitation record was 1.73 inches on June 21, 1984.

## Snowpack

June 1 reportable snowpack varied from 18% of average in the Spokane River Basin to as high as 1086% in the Quilcene River Basin. Westside averages, from SNOTEL readings, included the North Puget Sound river basins with 99% of average; the Central Puget Sound basin with 106%; and the Lewis-Cowlitz basins with 147% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima area with 194% of average, and the Wenatchee area with 88%. Snowpack in the Spokane River Basin remained below average at 18%, and the Pend Oreille River Basin (including Canadian data) retained only 40% of average snowpack. Maximum snow cover in the state was at Paradise SNOTEL near Mount Rainier. It had a water content of 60.8 inches. This site would normally have 48.1 inches of water content on June 1. The highest average in the state was Mount Crag SNOTEL in the Quilcene River Basin with 1086% of average. Mount Crag is typically melted-out by June 1.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane .....	11 .....	18
Newman Lake .....	AVG .....	AVG
Colville .....	N/A .....	N/A
Pend Oreille .....	24 .....	40
Okanogan .....	52 .....	84
Similkameen .....	N/A .....	N/A
Methow .....	43 .....	77
Chelan .....	46 .....	93
Wenatchee .....	38 .....	83
Stemilt Creek .....	AVG .....	AVG
Yakima .....	47 .....	114
Ahtanum Creek .....	32 .....	274
Walla Walla .....	AVG .....	AVG
Cowlitz .....	64 .....	109
Lewis .....	50 .....	186
White .....	77 .....	138
Green .....	28 .....	95
Cedar .....	AVG .....	AVG
Snoqualmie .....	37 .....	91
Skykomish .....	36 .....	104
Skagit .....	54 .....	95
Baker .....	70 .....	103
Nooksack .....	AVG .....	AVG
Olympic Peninsula .....	267 .....	1086

N/A = automated data is not available

AVG = normal melt-out has occurred at automated stations

## Precipitation

During the month of May, the National Weather Service and Natural Resources Conservation Service climate stations showed a trend of above average precipitation across Washington. The highest percent of average in the state was at Leavenworth, Washington. The Leavenworth climate station reported 532% of average for a total of 3.67 inches. The May average for Leavenworth was 0.69 inches. Averages for the water-year varied from 115% of average in the Okanogan - Methow basins to 86% in the Walla Walla River Basin. The highest individual site average for the water-year was 164% of average at Trough SNOTEL site near Wenatchee. Water-year averages increased for all basins in the state except the North Puget Sound and the Olympic Peninsula where averages dropped slightly. Heavy precipitation the last week of May caused flooding in some parts of Washington.

RIVER BASIN	MAY PERCENT OF AVERAGE	WATER-YEAR PERCENT OF AVERAGE
Spokane .....	172 .....	91 .....
Colville-Pend Oreille .....	212 .....	102 .....
Okanogan-Methow .....	209 .....	115 .....
Wenatchee-Chelan .....	173 .....	107 .....
Yakima .....	119 .....	103 .....
Walla Walla .....	143 .....	86 .....
Cowlitz-Lewis .....	134 .....	106 .....
White-Green .....	115 .....	95 .....
Central Puget Sound .....	111 .....	93 .....
North Puget Sound .....	94 .....	90 .....
Olympic Peninsula .....	80 .....	108 .....

## Reservoir

Reservoir storage in the Yakima Basin was 1,067,200 acre feet, or 114% of average. Storage at other reservoirs included the Okanogan reservoirs with 130% of average for June 1. Storage levels at Roosevelt and Banks Lakes were reported to be 168% of average on June 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 259,000 acre feet, or 92% of average and 109% of capacity; Chelan Lake, 601,700 acre feet, 134% of average and 89% of capacity; and the Skagit River reservoirs at 104% of average and 78% of capacity.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane .....	109 .....	92 .....
Colville-Pend Oreille .....	93 .....	168 .....
Okanogan-Methow .....	100 .....	130 .....
Wenatchee-Chelan .....	89 .....	134 .....
Yakima .....	100 .....	114 .....
North Puget Sound .....	78 .....	104 .....

## Points of Interest

This bulletin will be the last for the season. Basin Outlook Reports and Streamflow Forecasts are published January through June of each year. For up-to-date climate information throughout the summer months please visit the Internet web pages listed within the bulletin or feel free to contact Scott Pattee in the Mount Vernon Snow Survey Office at 360/428-7684, ext. 141 or email to [spattee@wa.nrcs.usda.gov](mailto:spattee@wa.nrcs.usda.gov).

The Washington Annual Data Summary for 1996 and 1997 will soon be available on the Internet and in published format. Watch your mail for future notices.

*For more information contact your local Natural Resources Conservation Service office.*



## Streamflow

There were a few modifications to streamflow forecasts this month. However most stayed about the same. Forecasts varied from 116% of average for Salmon Creek near Conconully and the Klickitat near Glenwood, to 53% of average for the Spokane River near Post Falls. June forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 76% of average; Green River, 76%; and the Dungeness River, 93%. Some Eastern Washington streams include the Yakima River near Parker, 86% of average; the Wenatchee River at Plain, 98%; and the Colville River at Kettle Falls, 106%. Volumetric forecasts are developed using current, historic, and average snowpack and precipitation and streamflow data collected and coordinated by organizations cooperating with NRCS. A beneficial fact sheet, "Interpreting Streamflow Forecasts," is available on the World Wide Web at <http://www.wcc.nrcs.usda.gov/factpub/factpub.html>

BASIN	PERCENT OF AVERAGE	
	MOST PROBABLE FORECAST	
	(50 PERCENT CHANCE OF EXCEEDENCE)	
Spokane .....	53-61	
Colville-Pend Oreille .....	56-106	
Okanogan-Methow .....	75-116	
Wenatchee-Chelan .....	81-103	
Yakima .....	77-116	
Walla Walla .....	80-99	
Cowlitz-Lewis .....	97-116	
Green River .....	76	
Central Puget Sound .....	71-87	
North Puget Sound .....	86-90	
Olympic Peninsula .....	90-93	

Streamflows reported for May continued to vary from well above to below average. The Yakima River at Kiona, had the highest flows at 186% of average; and the Spokane River at Spokane, with 76% of average, had the lowest flows in the state. Other streamflows were the following percentage of average: the Priest River, 123%; the Columbia at the International Boundary, 139%; the Spokane River at Longlake, 83%; the Columbia below Rock Island Dam, 125%; the Cle Elum River near Roslyn, 116%; and the Snake River below Ice Harbor Dam, 135%. The streamflow entering the five major Yakima reservoirs was 117% of average.

STREAM	PERCENT OF AVERAGE	
	MAY STREAMFLOWS	
Pend Oreille Below Box Canyon .....	95	
Kettle at Laurier .....	130	
Columbia at Birchbank .....	139	
Spokane at Long Lake .....	83	
Similkameen at Nighthawk .....	127	
Okanogan at Tonasket .....	148	
Methow at Pateros .....	182	
Chelan at Chelan .....	143	
Wenatchee at Pashastin .....	133	
Yakima at Cle Elum .....	98	
Yakima at Parker .....	126	
Naches at Naches .....	133	
Yakima at Kiona .....	186	
Grande Ronde at Troy .....	134	
Snake below Lower Granite Dam .....	129	
SF Walla Walla near Milton Freewater .....	148	
Columbia at The Dalles .....	127	
Lewis at Ariel .....	91	
Cowlitz below Mayfield Dam .....	91	
Skagit near Concrete .....	94	

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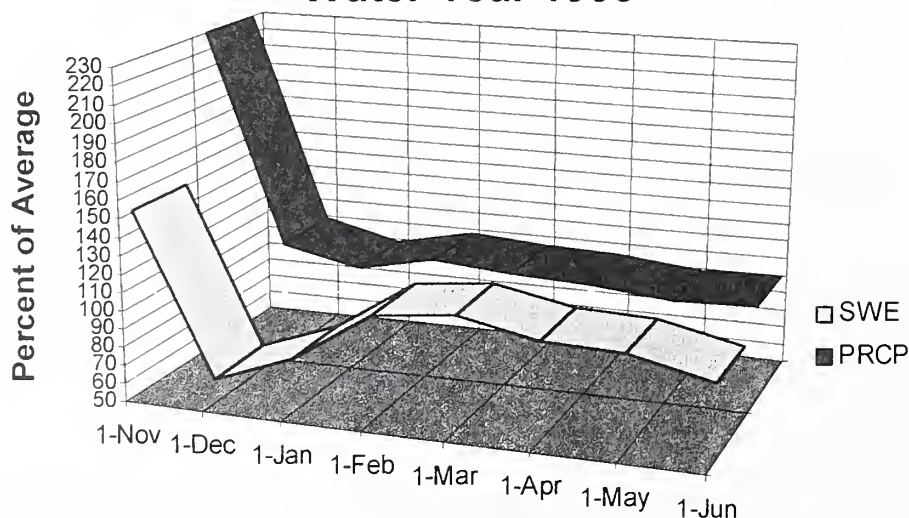
# BASIN SUMMARY OF SNOW COURSE DATA

JUNE 1998

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90	SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ALPINE MEADOWS PILL	3500	6/01/98	---	29.6S	48.7	22.7	MOSQUITO RDG PILL	5200	6/01/98	---	.0	30.0	16.0
BADGER PASS PILL	6900	6/01/98	---	.0	36.2	20.9	MOUNT CRAG PILL	4050	6/01/98	---	15.2S	5.7	.0
BARKER LAKES PILL	8250	6/01/98	---	5.4	12.0	10.0	MT. GARDNER PILL	2860	6/01/98	---	.0S	.0	.0
BASIN CREEK PILL	7180	6/01/98	---	.0	4.7	4.7	N.F. ELK CR PILL	6250	6/01/98	---	.0	.3	.9
BLACK PINE PILL	7100	6/01/98	---	.0	.0	2.4	NEVADA CREEK PILL	6480	6/01/98	---	.0	3.7	3.8
BLEWETT PASS#2PILL	4270	6/01/98	---	.0S	.0	.0	NEZ PERCE CMP PILL	5650	6/01/98	---	.0	.9	.2
BUMPING RIDGE PILL	4600	6/01/98	---	12.8S	29.1	6.3	NOISY BASIN PILL	6040	6/01/98	---	20.1	48.1	30.2
BUNCHGRASS MDWPILL	5000	6/01/98	---	4.0	--	15.4	NORTH FORK JOCKO	6330	5/29/98	15	7.4	44.2	26.3
CAYUSE PASS	5300	6/01/98	---	73.0E	97.0	67.8	OLALLIE MDWS PILL	3960	6/01/98	---	22.9S	71.4	30.0
CHICKEN CREEK	4060	5/30/98	0	.0	.0	.0	OLALLIE MEADOWS	3630	6/01/98	---	33.0E	98.0	41.3
COMBINATION PILL	5600	6/01/98	---	.0	.0	.0	PARADISE PARK PILL	5500	6/01/98	---	60.8S	104.2	48.1
COPPER BOTTOM PILL	5200	6/01/98	---	.0	.0	.0	PARK CK RIDGE PILL	4600	6/01/98	---	.7S	40.1	5.2
CORRAL PASS PILL	6000	6/01/98	---	27.9S	42.6	19.6	PETERSON MDW PILL	7200	5/27/98	---	1.0	6.9	2.7
COUGAR MTN. PILL	3200	6/01/98	---	.0S	.0	.0	PIGTAIL PEAK PILL	5900	6/01/98	---	36.0S	81.8	37.5
DALY CREEK PILL	5780	6/01/98	---	.0	.0	.0	PIKE CREEK PILL	5930	6/01/98	---	.0	11.4	7.9
DISCOVERY BASIN	7050	5/27/98	0	.0	7.0	4.8	POPE RIDGE PILL	3540	6/01/98	---	.0S	.0	.0
DOCK BUTTE AM	3800	6/01/98	---	55.0E	61.0	52.5	POTATO HILL PILL	4500	6/01/98	---	1.7S	5.5	1.1
EASY PASS AM	5200	6/01/98	---	74.0E	122.0	73.3	QUARTZ PEAK PILL	4700	6/01/98	---	.0	.0	.0
ELBOW LAKE PILL	3200	6/01/98	---	.0S	14.6	6.1	RAINY PASS PILL	4780	6/01/98	---	14.1S	41.5	20.4
EMERY CREEK PILL	4350	6/01/98	---	.0	.0	.0	REX RIVER PILL	1900	6/01/98	---	.0S	10.3	.0
FISH LAKE PILL	3370	6/01/98	---	.0S	21.5	5.0	ROCKER PEAK PILL	8000	6/01/98	---	7.8	14.4	13.2
FLATTOP MTN PILL	6300	6/01/98	---	21.1	53.5	34.4	SADDLE MTN PILL	7900	6/01/98	---	13.6	16.6	17.5
FROHNER MDWS PILL	6480	6/01/98	---	.0	.0	1.2	SALMON MDWS PILL	4500	6/01/98	---	.0S	.0	.0
GRAVE CRK PILL	4300	6/01/98	---	.0	.0	.0	SASSE RIDGE PILL	4200	6/01/98	---	.0S	21.7	1.3
GREEN LAKE PILL	6000	6/01/98	---	10.4S	32.4	3.8	SAVAGE PASS PILL	6170	6/01/98	---	2.5	22.1	12.5
GROUSE CAMP PILL	5380	6/01/98	---	.0S	.0	.0	SHEEP CANYON PILL	4050	6/01/98	---	12.6S	4.1	11.6
HAND CREEK PILL	5030	6/01/98	---	.0	.0	.0	SKALKASHO PILL	7260	6/01/98	---	9.7	27.5	15.8
HARTS PASS PILL	6500	6/01/98	---	21.2S	40.9	25.3	SKOOKUM CREEK PILL	3920	6/01/98	---	.0S	.0	.0
HELL ROARING DIVIDE	5770	5/29/98	3	1.4	23.1	11.2	SPECER MDW PILL	3400	6/01/98	---	.0S	.3	.0
HERRIG JUNCTION	4850	5/30/98	0	.0	21.9	2.4	SPIRIT LAKE PILL	3100	6/01/98	---	.0S	.0	.0
HIGH RIDGE PILL	4980	6/01/98	---	.0S	.0	.6	STAHL PEAK PILL	6030	6/01/98	---	22.2	36.0	27.3
HOODOO BASIN PILL	6050	6/01/98	---	17.3	58.9	29.2	STAMPEDE PASS PILL	3860	6/01/98	---	14.2S	50.8	15.0
HUMBOLDT GLCH PILL	4250	6/01/98	---	.0	.0	.0	STEVENS PASS PILL	4070	6/01/98	---	.0S	34.4	5.7
JUNE LAKE PILL	3200	6/01/98	---	.0S	9.0	.0	STRYKER BASIN	6180	5/30/98	14	6.6	34.0	20.6
KRAFT CREEK PILL	4750	6/01/98	---	.0	.0	.0	STUART MOUNTAIN	7400	5/29/98	20	9.0	36.3	--
LOLO PASS PILL	5240	6/01/98	---	.0	31.8	.0	SUNSET PILL	5540	6/01/98	---	.0	24.7	20.7
LONE PINE PILL	3800	6/01/98	---	21.1S	37.4	9.4	SURPRISE LKS PILL	4250	6/01/98	---	23.3S	42.8	14.5
LOOKOUT PILL	5140	6/01/98	---	.0	21.3	10.0	TINKHAM CREEK PILL	3000	6/01/98	---	.0S	13.6	.0
LOST HORSE PILL	5000	6/01/98	---	.0S	.0	.0	TOUCHET #2 PILL	5530	6/01/98	---	.0	5.6	.0
LOST LAKE PILL	6110	6/01/98	---	17.2	80.8	46.8	TROUGH #2 PILL	5310	6/01/98	---	.0S	.0	6.0
LUBRECHT PILL	4680	6/01/98	---	.0	.0	.0	TV MOUNTAIN	6800	5/29/98	0	.0	13.0	--
LYMAN LAKE PILL	5900	6/01/98	---	49.6S	73.9	43.3	TWELVEMILE PILL	5600	6/01/98	---	.0	.0	.6
MEADOWS PASS PILL	3240	6/01/98	---	.0S	.0	.0	TWIN LAKES PILL	6400	6/01/98	---	6.5	36.1	25.8
MICA CREEK PILL	4750	6/01/98	---	.0	7.6	--	UPPER WHEELER PILL	4400	6/01/98	---	.0S	.0	.0
MOOSE CREEK PILL	6200	6/01/98	---	.0	4.2	.0	WARM SPRINGS PILL	7800	6/01/98	---	14.3	24.9	19.6
MORSE LAKE PILL	5400	6/01/98	---	48.9S	54.9	21.4	WELLS CREEK PILL	4200	6/01/98	---	.0S	14.5	22.2
MOSES MTN PILL	4800	6/01/98	---	.0S	.0	.0	WHITE PASS ES PILL	4500	6/01/98	---	2.5S	.0	4.6(d)

Denotes discontinued site.

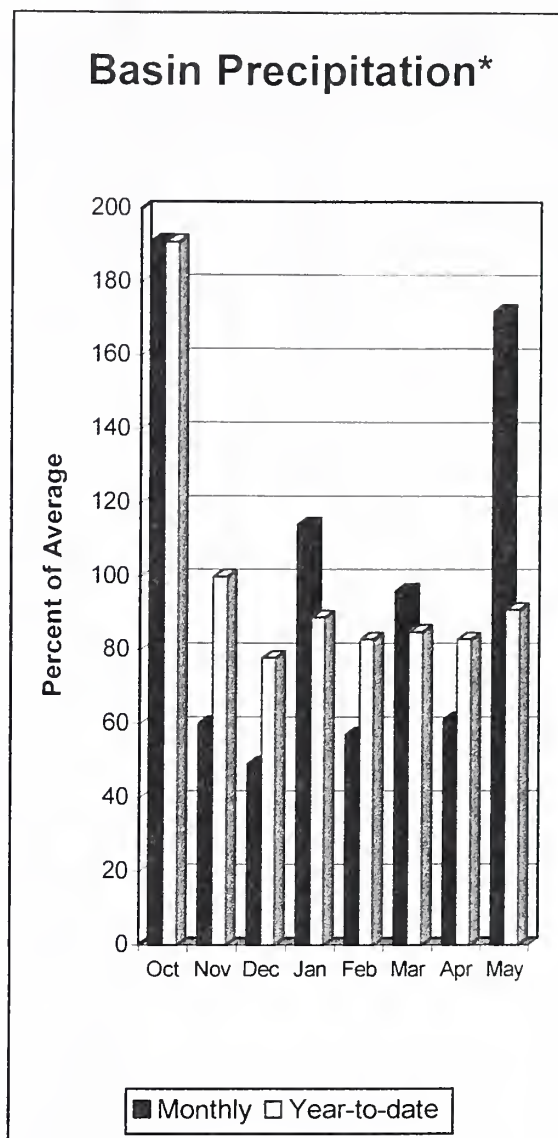
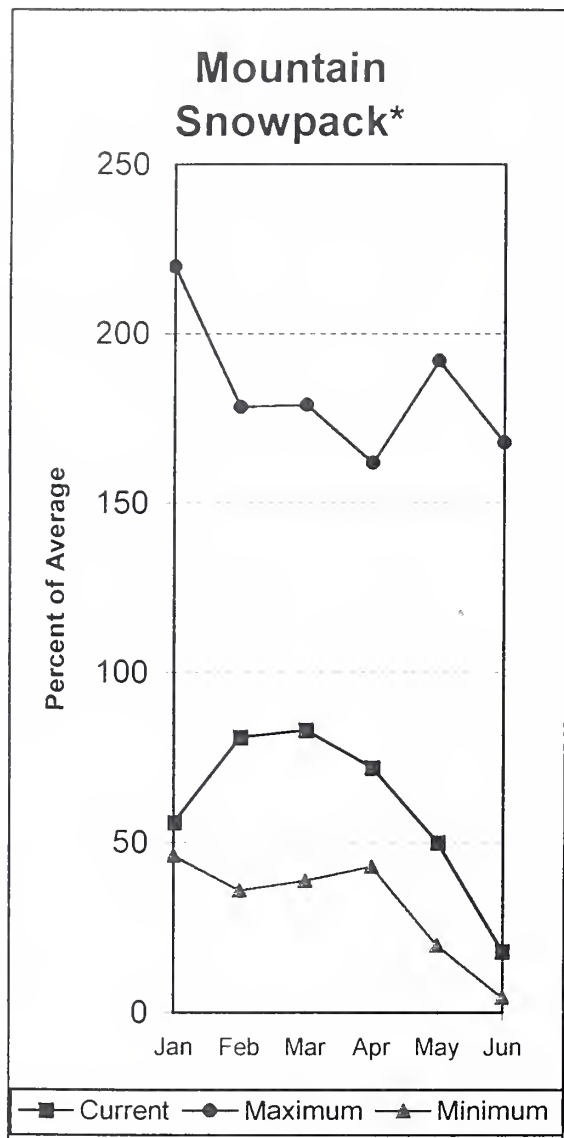
## Statewide Snowpack and Precipitation Water-Year 1998







# Spokane River Basin



\*Based on selected stations

The June 1 forecasts for summer runoff within the Spokane River Basin were 53% of average near Post Falls and 61% of average at Long Lake. The forecast is based on a basin snowpack that is 18% of average and precipitation that is 91% of average for the water-year. Precipitation for May was much above normal at 172% of average. Streamflow on the Spokane River at Long Lake, was 83% of average for May. June 1 storage in Coeur d'Alene Lake, was 259,000 acre feet, 92% of average, and 109% of capacity. Snowpack at Quartz Peak SNOTEL site had melted. Which is normal for June 1. Average temperatures in the Spokane Basin were 1 degree above normal.

*For more information contact your local Natural Resources Conservation Service office.*

# Spokane River Basin

## Streamflow Forecasts - June 1, 1998

SPOKANE near Post Falls (2)	JUN-SEP	192	327	418	53	509	644	794
	JUN-JUL	153	269	348	50	427	543	697
SPOKANE at Long Lake	JUN-JUL	281	400	481	56	562	681	861
	JUN-SEP	423	563	658	61	753	893	1083

### SPOKANE RIVER BASIN Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
COEUR D'ALENE	238.5	259.0	454.5	280.5

### SPOKANE RIVER BASIN Watershed Snowpack Analysis - June 1, 1998

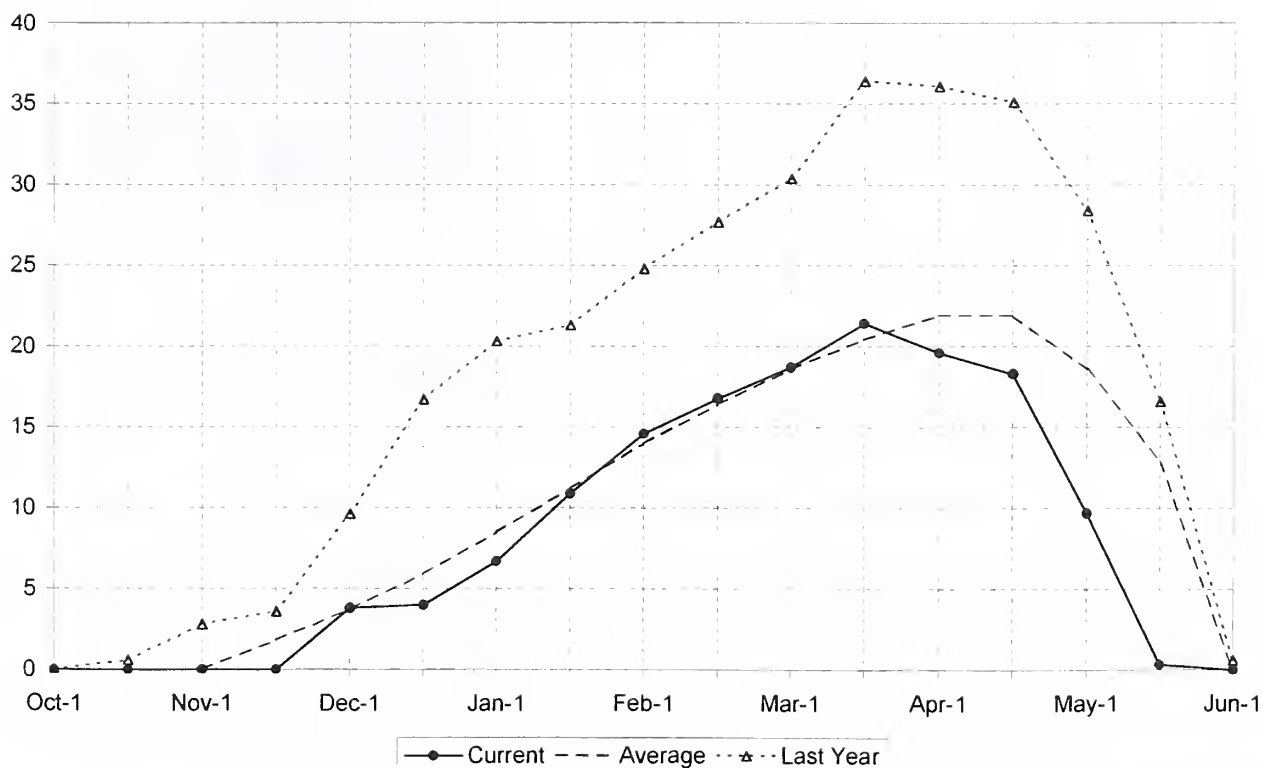
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
SPOKANE RIVER	7	11	18
NEWMAN LAKE	1	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

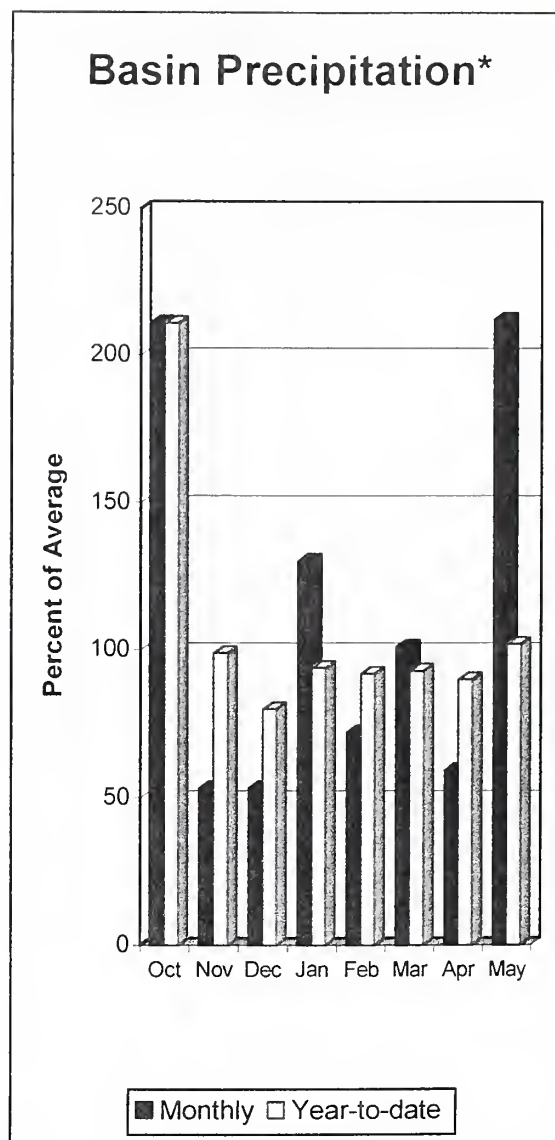
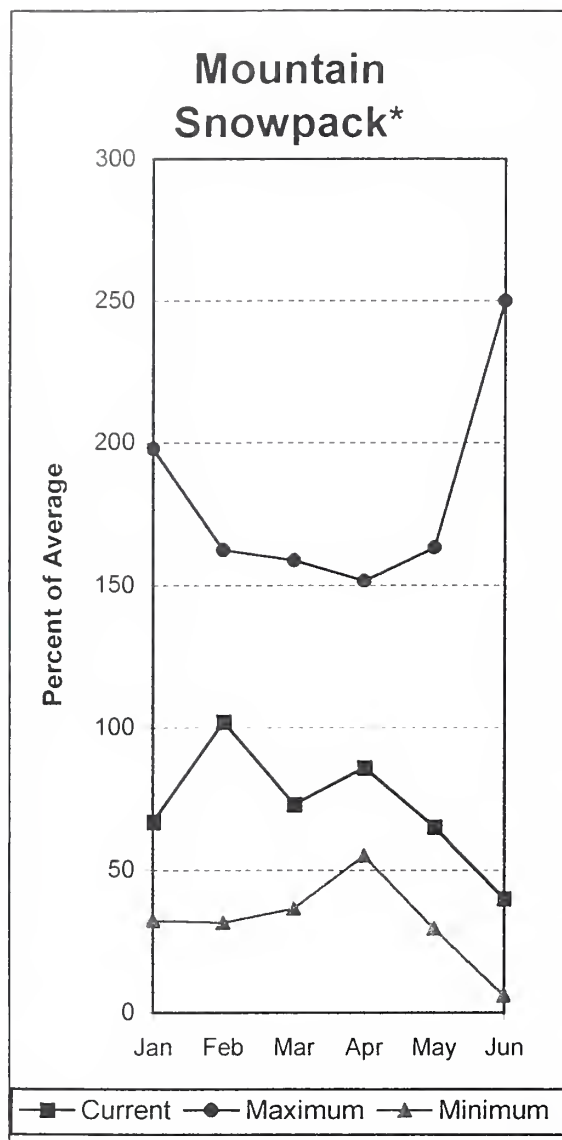
- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Quartz Peak SNOTEL Elevation 4700 ft.





## Colville - Pend Oreille River Basins



\*Based on selected stations

The forecast for the Kettle River streamflow is for average flows this summer; the Pend Oreille below Box Canyon, 70% of average; and the Priest River near the town of Priest River, 56% of average for the summer runoff period. May streamflow was 95% of average in the Pend Oreille River; 139% in the Columbia at the International Boundary; and 130% in the Kettle River. Remaining June 1 snow cover was 40% of average in the Pend Oreille Basin. Precipitation during May was 212% of average, bringing the year-to-date precipitation to 102% of average. Reservoir storage in Roosevelt and Banks Lakes was 168% of average and 93% of capacity. Temperatures were near normal for the month.

*For more information contact your local Natural Resources Conservation Service office.*

# Colville - Pend Oreille River Basins

## Streamflow Forecasts - June 1, 1998

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	90% 70%		Chance Of Exceeding * 50% (Most Probable)		30% 10%		30-Yr Avg.
		(1000AF)	(1000AF)	(1000AF)	(% AVG.)	(1000AF)	(1000AF)	
PEND OREILLE Lake Inflow (1,2)	JUN-JUL	2883	4002	4510	70	5018	6137	6449
	JUN-SEP	3594	4836	5400	70	5964	7206	7669
PRIEST nr Priest River (1,2)	JUN-SEP	42	147	195	56	243	348	351
PEND OREILLE bl Box Canyon (1,2)	JUN-JUL	1905	3579	4340	66	5101	6775	6543
	JUN-SEP	2615	4468	5310	69	6152	8005	7754
COLVILLE at Kettle Falls	JUN-SEP	27	37	44	106	51	61	41
	JUN-JUL	17.6	26	32	108	38	47	30
KETTLE near Laurier	JUN-SEP	649	769	850	100	931	1051	851
	JUN-JUL	600	695	760	100	825	920	758
COLUMBIA at Birchbank (1,2)	JUN-JUL	12579	14725	15700	69	16675	18821	22910
	JUN-SEP	19724	22458	23700	75	24942	27676	31580
COLUMBIA at Grand Coulee Dm (1,2)	JUN-SEP	27925	31759	33500	80	35241	39075	41706
	JUN-JUL	19325	22471	23900	76	25329	28475	31400

### COLVILLE - PEND OREILLE RIVER BASINS Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	COLVILLE - PEND OREILLE RIVER BASINS Watershed Snowpack Analysis - June 1, 1998		
		This Year	Last Year	Avg		Number of Data Sites	This Year as % of Last Yr	Average
ROOSEVELT	5232.0	4789.4	2398.6	2851.0	COLVILLE RIVER	0	0	0
BANKS	715.0	711.7	665.5	418.0	PEND OREILLE RIVER	41	24	40
					KETTLE RIVER	0	0	0

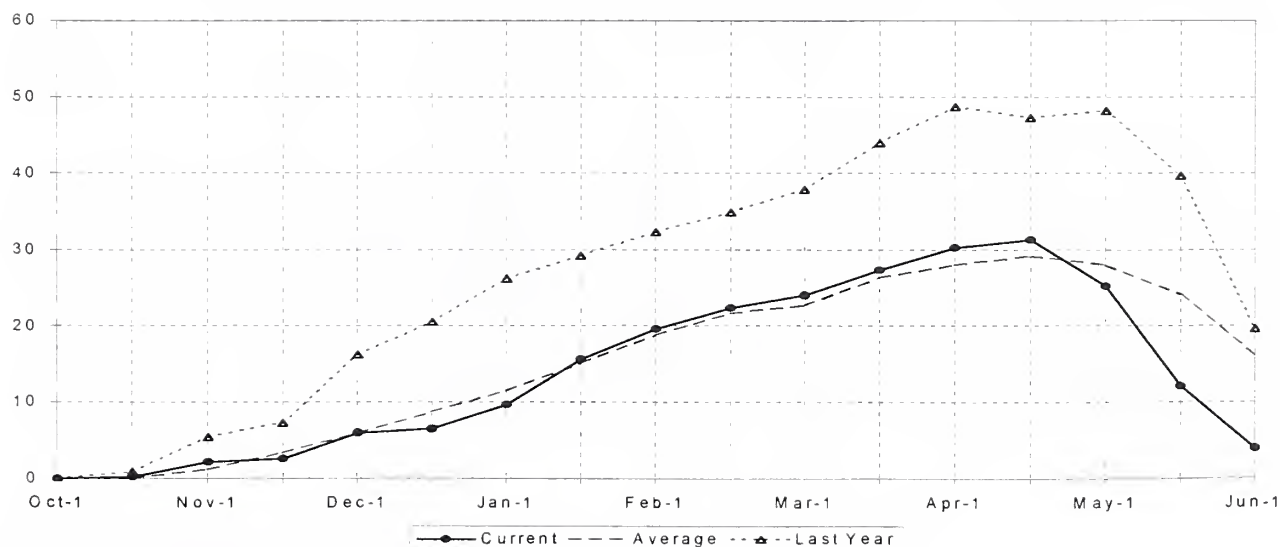
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

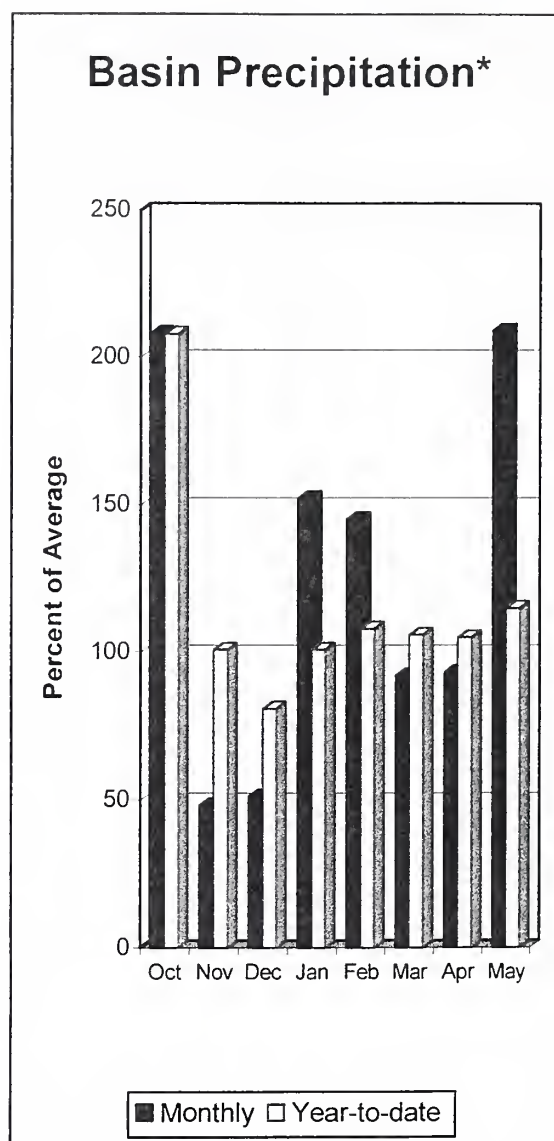
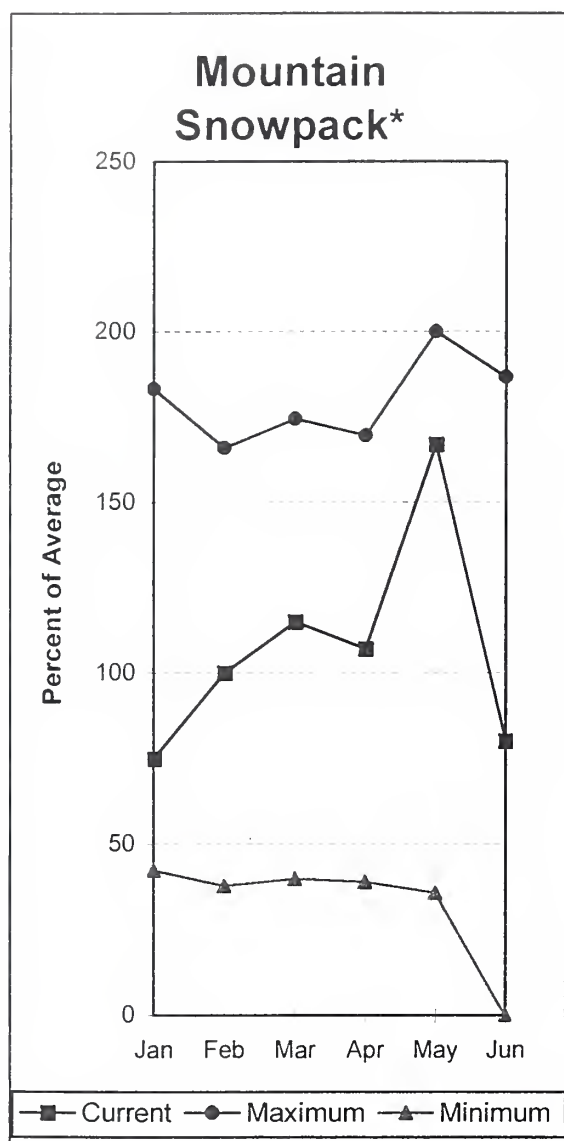
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

### Bunchgrass Meadows SNOTEL Elevation 5000 ft.



# Okanogan - Methow River Basins



\*Based on selected stations

Summer runoff forecast for the Okanogan River is 75% of average; the Similkameen River, 79%; the Methow River, 100%; and Salmon Creek, 116% of average. June 1 snow cover in the Okanogan was 84% of average; and the Methow, 77%. Salmon Meadows SNOTEL site above Conconully Lake had melted out by June 1. May precipitation in the Okanogan-Methow was 209% of average, with precipitation for the water-year at 115% of average. May streamflow for the Methow River was 182% of average; 148% for the Okanogan River; and 127% for the Similkameen. Combined storage in the Conconully Reservoirs was 23,400 acre feet, which is 100% of capacity and 130% of the June 1 average.

*For more information contact your local Natural Resources Conservation Service office.*



# Okanogan - Methow River Basins

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<===== Drier ===== Future Conditions ===== Wetter =====>						
		Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN near Nighthawk (1)	JUN-JUL	340	513	591	78	669	842	755
	JUN-SEP	412	588	668	79	748	924	850
	JUN-JUN	251	388	450	80	512	649	564
OKANOGAN near Tonasket (1)	JUN-JUL	322	538	636	75	734	950	848
	JUN-SEP	398	643	755	75	867	1112	1005
	JUN-JUN	228	405	485	79	565	742	615
SALMON CREEK near Conconully	JUN-JUL	3.97	8.15	11.00	118	13.85	18.03	9.30
	JUN-SEP	4.1	8.7	11.8	116	14.9	19.5	10.2
METHOW RIVER near Pateros	JUN-SEP	437	507	555	100	603	673	555
	JUN-JUL	388	449	490	101	531	592	486
	JUN-JUN	275	326	360	100	394	445	359

### OKANOGAN - METHOW RIVER BASINS Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage ***		
		This Year	Last Year	Avg
SALMON LAKE	10.5	10.0	9.9	9.0
CONCONULLY RESERVOIR	13.0	13.4	13.3	9.0

### OKANOGAN - METHOW RIVER BASINS Watershed Snowpack Analysis - June 1, 1998

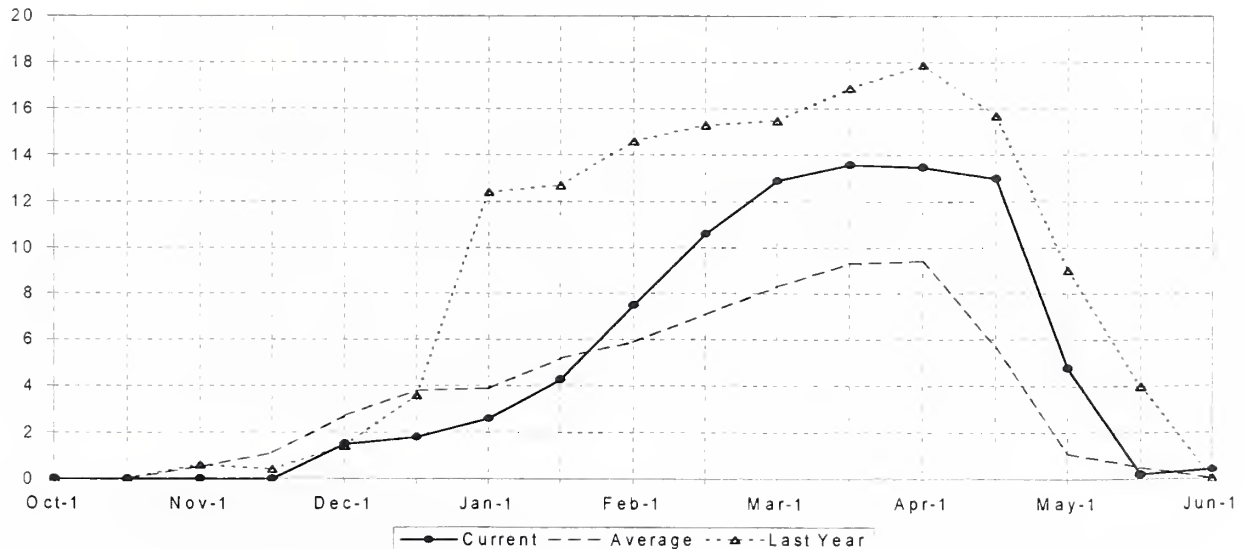
Watershed	Number of Data Sites	This Year as % of	
		Last Yr	Average
OKANOGAN RIVER	2	52	84
OMAK CREEK	1	0	0
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	0	0	0
CONCONULLY LAKE	1	0	0
METHOW RIVER	3	43	77

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

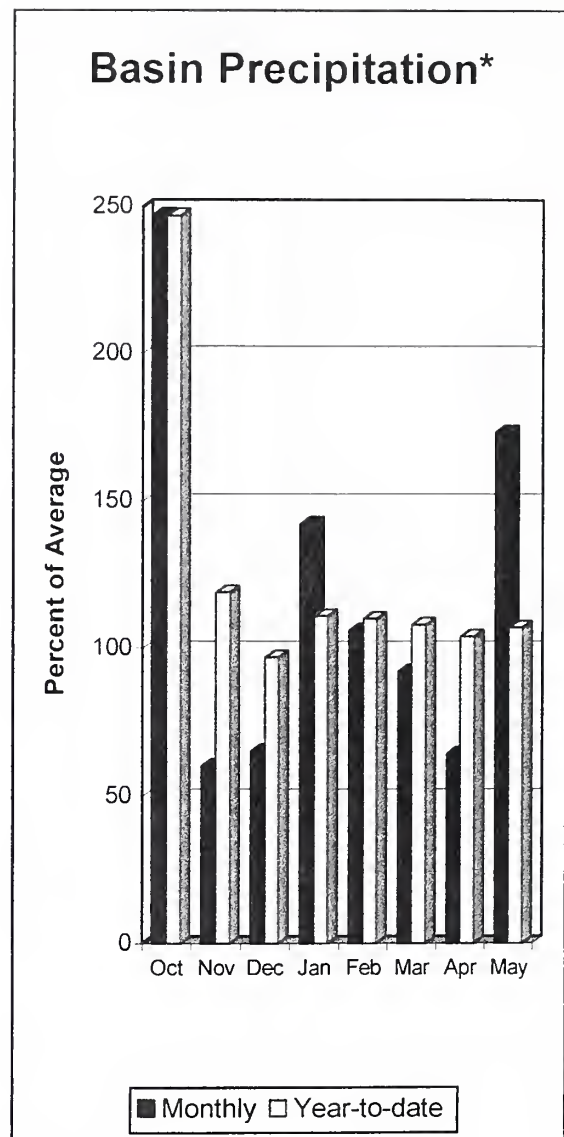
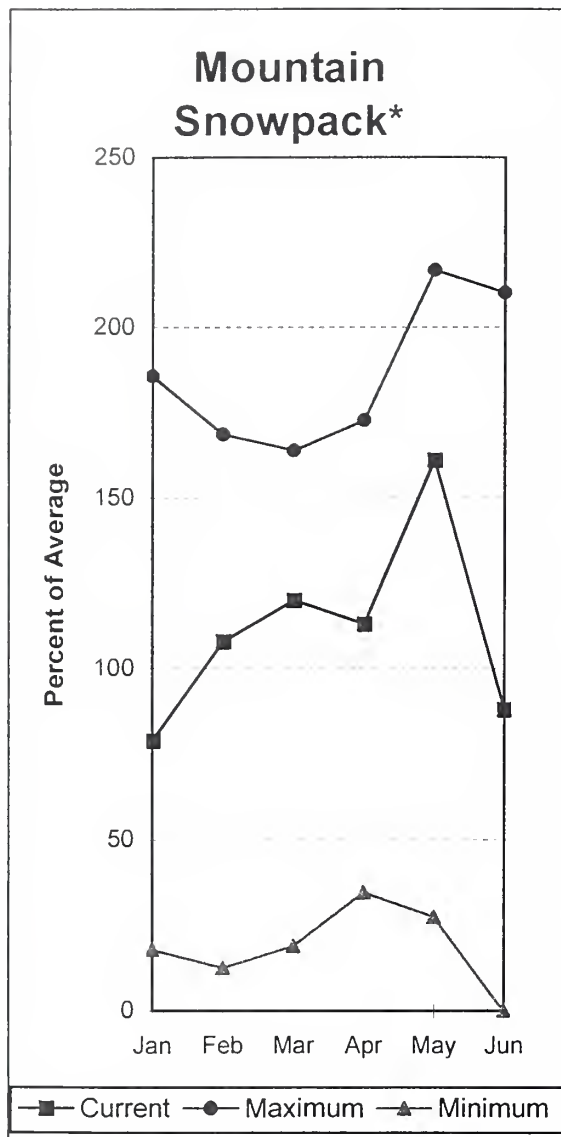
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

### Salmon Meadows SNOTEL Elevation 4500 ft.



## Wenatchee - Chelan River Basins



\*Based on selected stations

Precipitation during May was 173% of average in the basin and 107% for the year-to-date. Runoff for the Entiat River is forecast to be 103% of average for the summer. The June-September forecast for the Chelan River is 87%; for the Wenatchee River at Plain it is 98%; and for the Stehekin it is 85% of average. Icicle, Stemilt and Squilchuck Creeks are all expected to have near normal flows this summer as well. May streamflow on the Chelan River was 143% of average, and the Wenatchee River averaged 133%. June 1 snowpack in the Wenatchee Basin was 83% of average. The Chelan Basin was 93% of average; Colockum Ridge and Stemilt Creek experienced normal snow-melt. Snowpack in the Entiat River Basin was near normal. Reservoir storage in Lake Chelan was 601,700 acre feet, or 134% of June 1 average and 89% of capacity. Lyman Lake SNOTEL had the most snow water with 49.6 inches of water. This site would normally have 43.3 inches on June 1. Temperatures were near normal for May.

*For more information contact your local Natural Resources Conservation Service office.*

# Wenatchee - Chelan River Basins

## Streamflow Forecasts - June 1, 1998

		<<===== Drier =====		Future Conditions		===== Wetter =====>>			
Forecast Point	Forecast Period	=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)	
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)		
=====									
CHELAN RIVER near Chelan	JUN-SEP	484	580	645	87	710	806	738	
	JUN-JUL	388	473	530	88	587	672	602	
	JUN-JUN	231	300	347	89	394	463	390	
STEHEKIN near STEHEKIN	JUN-SEP	357	421	465	85	509	573	548	
	JUN-JUL	275	327	363	86	399	451	422	
	JUN-JUN	156	197	225	87	253	294	259	
ENTIAT RIVER near Ardenvoir	JUN-SEP	124	139	150	103	161	176	145	
	JUN-SEP	124	139	150	103	161	176	145	
	JUN-JUN	71	84	93	107	102	116	87	
WENATCHEE at Plain	JUN-JUL	477	543	588	98	633	699	600	
	JUN-SEP	563	647	704	98	761	845	718	
	JUN-JUN	305	356	390	100	424	475	391	
ICICLE CREEK near Leavenworth	JUN-SEP	155	179	195	99	211	235	198	
	JUN-JUL	132	155	170	99	185	208	172	
	JUN-JUN	80	101	116	100	131	152	116	
COLUMBIA R. bl Rock Island Dam (2)	JUN-SEP	29298	33527	36400	81	39273	43502	45171	
	JUN-JUL	20220	23721	26100	76	28479	31980	34423	

WENATCHEE - CHELAN RIVER BASINS Reservoir Storage (1000 AF) - End of May					WENATCHEE - CHELAN RIVER BASINS Watershed Snowpack Analysis - June 1, 1998			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
CHELAN LAKE	676.1	601.7	511.2	450.6	CHELAN LAKE BASIN	4	46	93
					ENTIAT RIVER	1	0	0
					WENATCHEE RIVER	6	38	83
					SQUILCHUCK CREEK	0	0	0
					STEMILT CREEK	1	0	0
					COLOCKUM CREEK	1	0	0

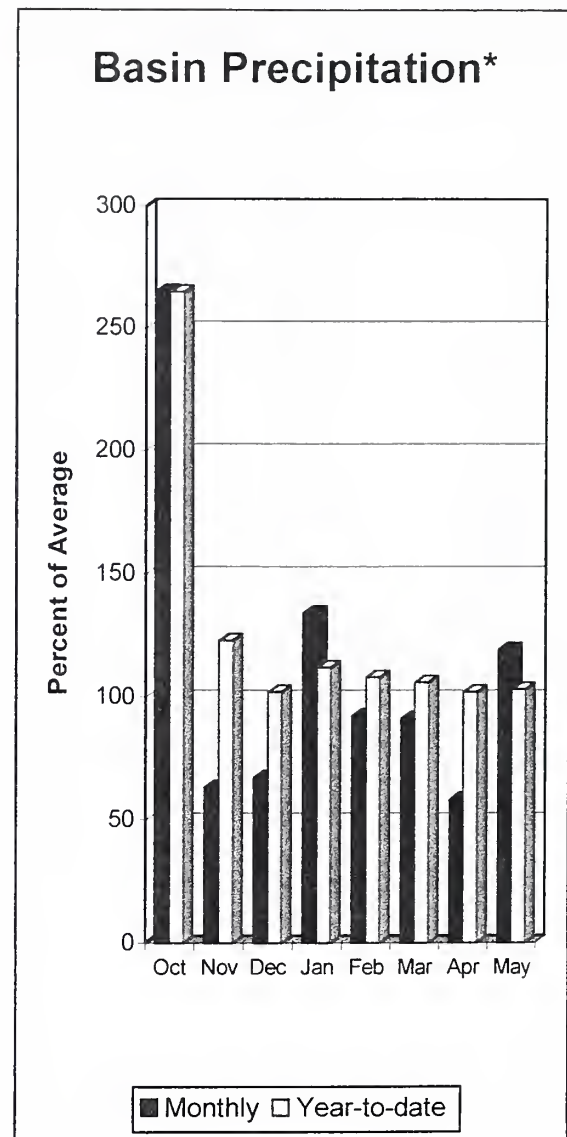
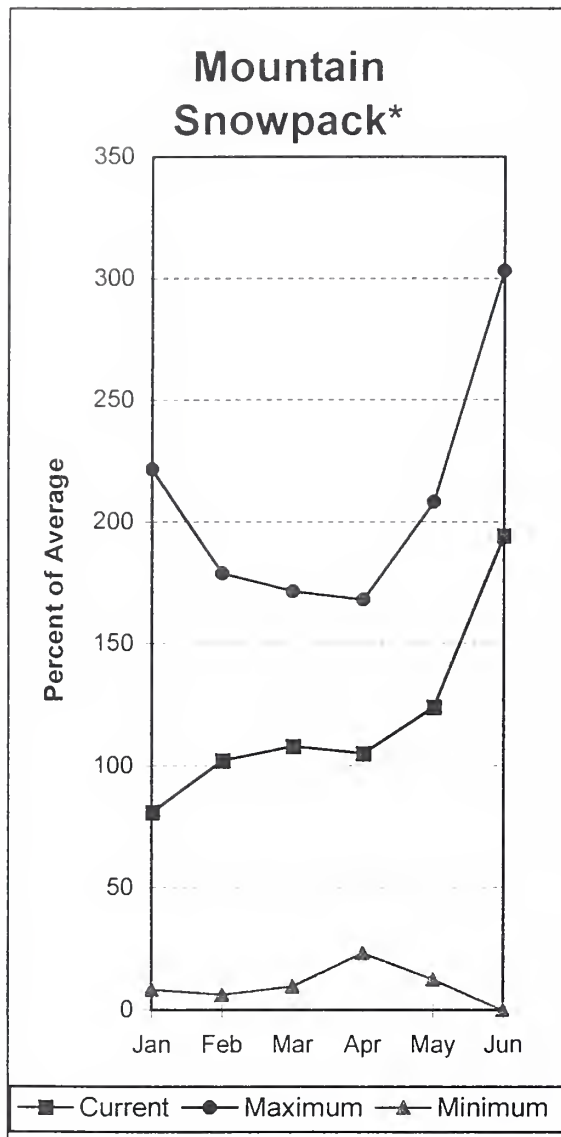
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.



# Yakima River Basin



\*Based on selected stations

June 1 reservoir storage for the five major reservoirs was 1,067,200 acre feet, or 114% of average. June 1 summer streamflow forecasts are for near to slightly below normal in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 88% of average; Naches River, 87%; the Yakima River near Parker, 86%; Ahtanum Creek, 91%; and the Tieton River, 90%. The Klickitat River near Glenwood is forecast to have 116% of average flows this summer. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available, which includes irrigation return flow. May streamflows within the basin were: the Yakima River near Kiona, 186% of average; the Yakima River near Cle Elum, 981%; and the Naches River at 133%. June 1 snowpack was 114% based upon 13 snow courses and SNOTEL readings within the Yakima Basin. Precipitation was 119% of average for May and 103% for the water-year-to-date.

*For more information contact your local Natural Resources Conservation Service office.*

# Yakima River Basin

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<<----- Drier -----		Future Conditions		----- Wetter ----->>		30-Yr Avg. (1000AF)
		=====		Chance Of Exceeding *		=====		
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
KEECHELUS LAKE INFLOW	JUN-JUL	27	36	42	82	48	58	51
	JUN-SEP	33	44	51	82	58	69	62
	JUN-JUN	18.8	26	30	83	35	41	36
KACHESS LAKE INFLOW	JUN-JUL	25	32	37	82	42	49	45
	JUN-SEP	29	37	43	82	48	56	52
	JUN-JUN	18.2	24	27	83	31	37	33
CLE ELUM LAKE INFLOW	JUN-JUL	116	140	157	78	174	198	201
	JUN-SEP	136	165	185	77	205	234	239
	JUN-JUN	73	94	108	79	122	143	137
YAKIMA at Cle Elum	JUN-JUN	167	202	225	90	248	283	251
	JUN-JUL	235	285	320	89	355	405	361
	JUN-SEP	291	350	390	88	430	489	444
BUMPING LAKE INFLOW	JUN-SEP	49	62	71	92	80	93	77
	JUN-JUL	41	53	61	93	69	80	65
	JUN-JUN	26	36	42	93	49	58	45
AMERICAN RIVER near Nile	JUN-SEP	57	64	69	106	74	81	65
	JUN-JUL	48	55	60	107	65	72	56
	JUN-JUN	33	38	42	108	46	52	39
RIMROCK LAKE INFLOW	JUN-SEP	104	118	128	90	138	152	143
	JUN-JUL	76	87	95	90	103	114	106
	JUN-JUN	45	55	61	91	68	77	67
NACHES near Naches	JUN-SEP	274	331	370	87	409	466	424
	JUN-JUL	223	270	302	87	334	382	347
	JUN-JUN	149	188	215	89	242	281	243
AHTANUM CREEK nr Tampico (2)	JUN-SEP	26	31	35	91	38	43	38
	JUN-JUL	23	28	31	90	34	38	34
	JUN-JUN	19.2	23	26	91	28	32	28
YAKIMA near Parker	JUN-SEP	572	712	807	86	902	1042	938
	JUN-JUL	452	567	645	86	723	838	749
	JUN-SEP	572	712	807	86	902	1042	938
KLICKITAT near Glenwood	JUN-JUN	36	42	46	118	50	56	39
	JUN-SEP	64	74	81	116	88	98	70

### YAKIMA RIVER BASIN Reservoir Storage (1000 AF) - End of May

### YAKIMA RIVER BASIN Watershed Snowpack Analysis - June 1, 1998

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
KEECHELUS	157.8	157.5	146.8	144.0	YAKIMA RIVER	13	47	114
KACHESS	239.0	238.9	223.9	218.0	AHTANUM CREEK	2	32	274
CLE ELUM	436.9	437.0	343.3	378.0				
BUMPING LAKE	33.7	35.4	31.3	27.0				
RIMROCK	198.0	198.4	158.5	167.0				

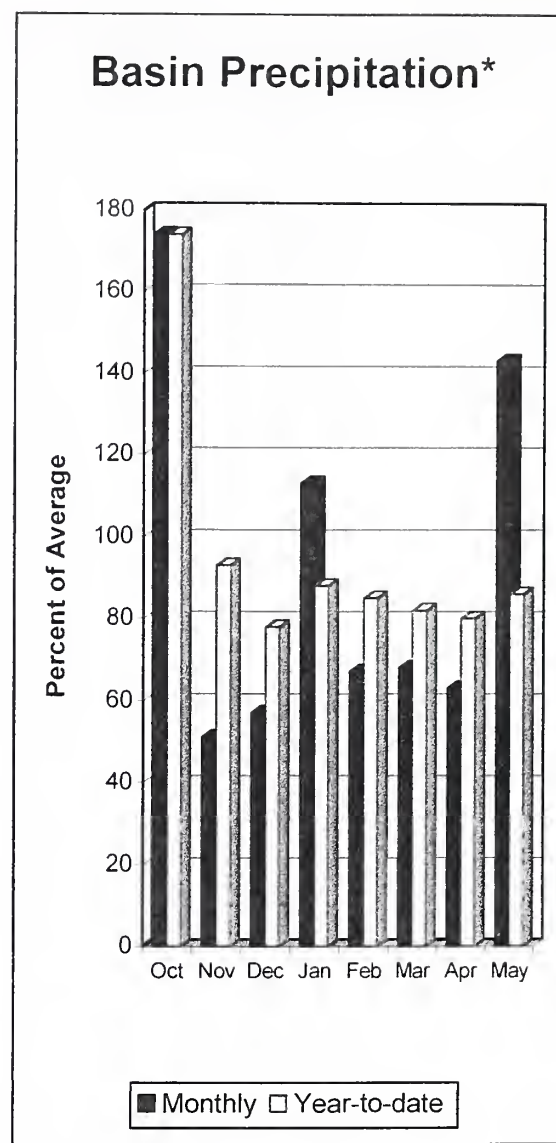
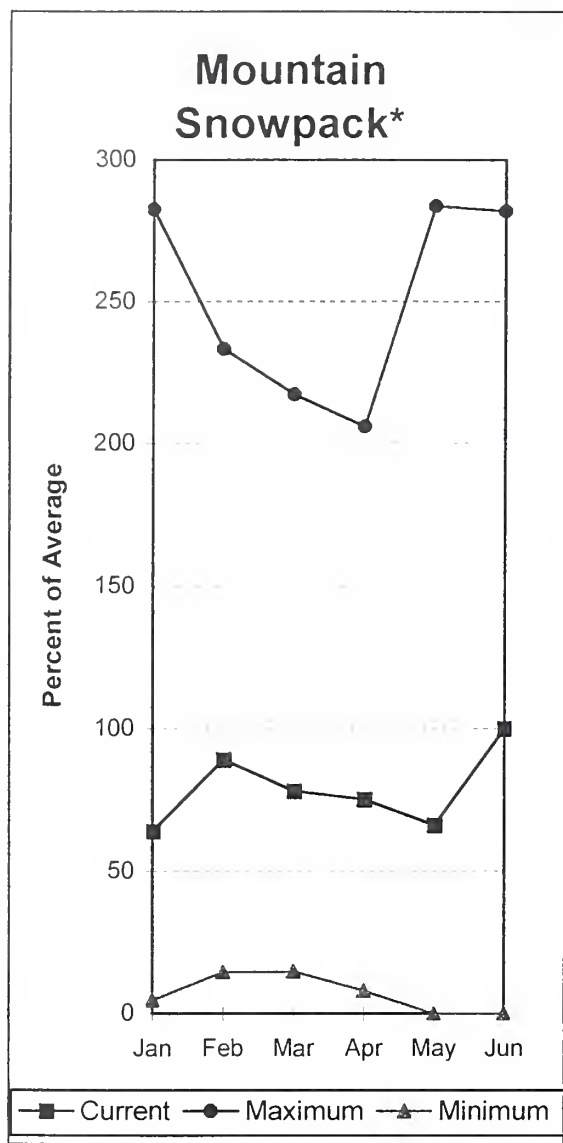
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

# Walla Walla River Basin



\*Based on selected stations

May precipitation was 143% of average, bringing the year-to-date precipitation to 86% of average. Snowpack was mostly gone by June 1. The summer forecast is for 88% of average streamflow in the Snake River below Lower Granite Dam, 99% for the Grande Ronde at Troy, and 99% for Mill Creek. May streamflow was 148% of average for the Walla Walla River; 129% for the Snake River below Lower Granite Dam; and 134% for the Grande Ronde River near Troy. Snow at the Touchet SNOTEL site had melted by June 1. Average temperatures were slightly below normal for the area.

*For more information contact your local Natural Resources Conservation Service office.*



# Walla Walla River Basin

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	Chance Of Exceeding * (% AVG.)	30% (1000AF)	10% (1000AF)	
GRANDE RONDE at Troy (1)	JUN-JUL	330	419	460	99	501	590	466
	JUN-SEP	403	511	560	99	609	717	564
SNAKE blw Lower Granite Dam (1,2)	JUN-JUL	6623	7735	8240	85	8745	9857	9678
	JUN-SEP	8847	10259	10900	88	11541	12953	12390
MILL CREEK at Walla Walla	JUN-SEP	4.22	6.11	7.40	99	8.69	10.58	7.50
	JUN-JUL	4.03	5.92	7.20	99	8.48	10.37	7.30
	JUN-JUN	3.99	5.78	7.00	99	8.22	10.01	7.10
SF WALLA WALLA near Milton-Freewater	JUN-JUL	13.1	15.9	17.8	92	19.7	23	19.3
	JUN-SEP	25	28	31	95	33	37	33
COLUMBIA R. at The Dalles (2)	JUN-SEP	36245	43065	47700	80	52335	59155	59652
	JUN-JUL	24144	29834	33700	74	37566	43256	45431

WALLA WALLA RIVER BASIN  
Reservoir Storage (1000 AF) - End of May

WALLA WALLA RIVER BASIN  
Watershed Snowpack Analysis - June 1, 1998

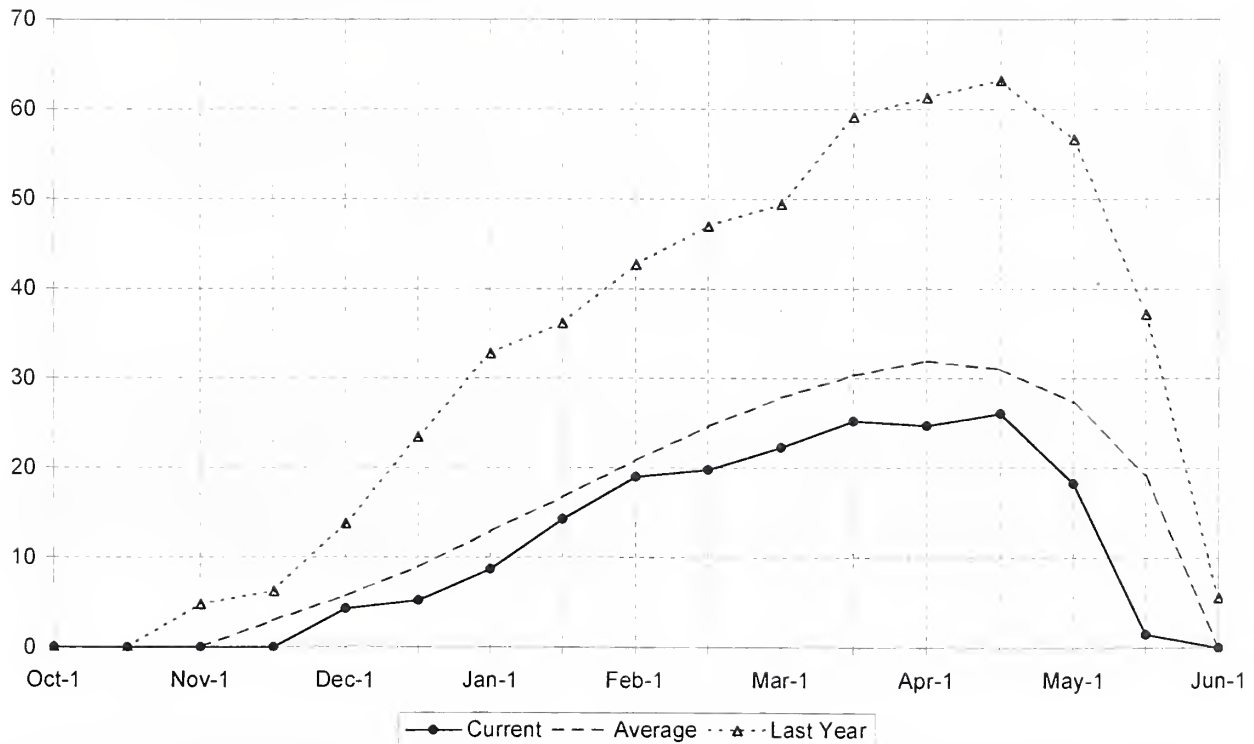
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					WALLA WALLA RIVER	2	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

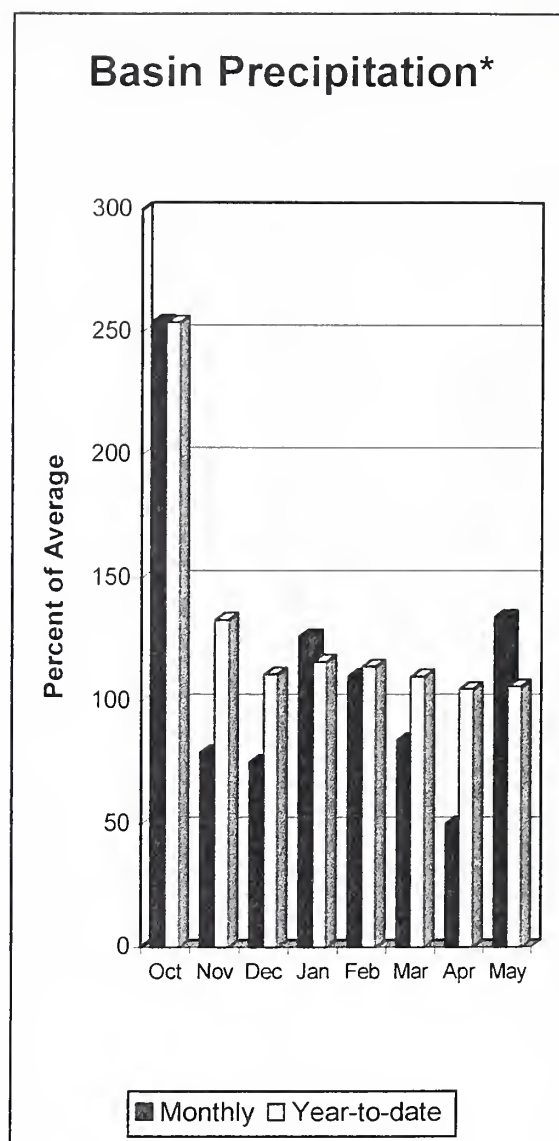
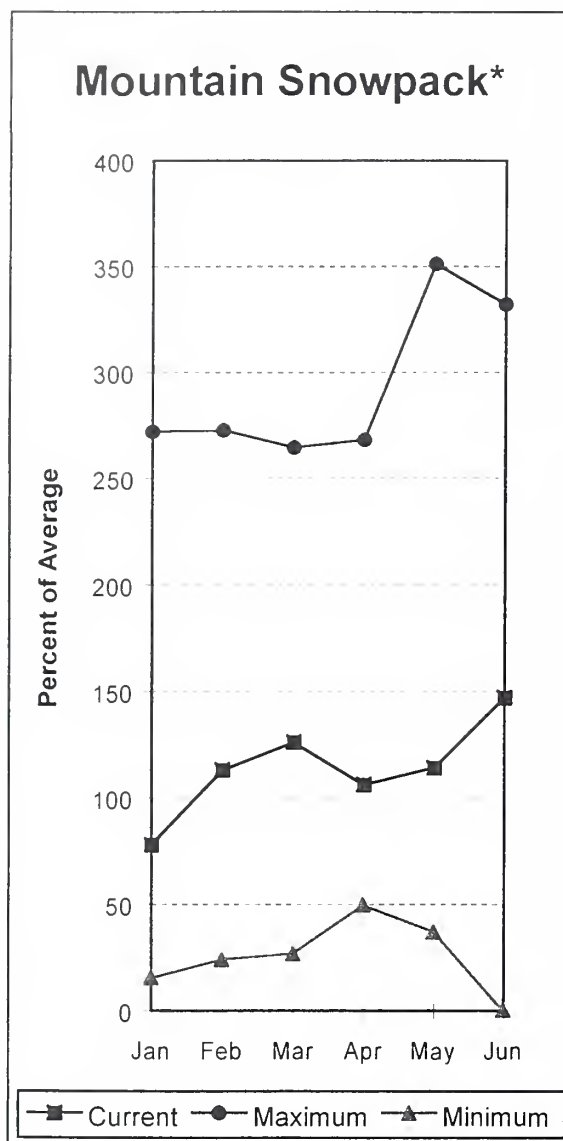
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
(2) - The value is natural flow - actual flow may be affected by upstream water management.

## Touchet #2 SNOTEL Elevation 5530 ft.



# Cowlitz - Lewis River Basins



\*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is for 97% of average. The Cowlitz River at Castle Rock, is forecast for 111% of average runoff. May streamflow was 91% of average for the Cowlitz River and for the Lewis River. May precipitation was 134% of average. It was 106% of average for the water-year. June 1 snow cover for the Cowlitz River was 109%, and the Lewis River was 186% of average. The Paradise Park SNOTEL recorded the most water-content for the basin with 60.8 inches of water. Average June 1 water-content is 48.1 inches. Average temperatures were 1 degree below normal during May.

*For more information contact your local Natural Resources Conservation Service office.*

# Cowlitz - Lewis River Basins

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		Chance Of Exceeding *		Chance Of Exceeding *				
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS at Ariel (2)	JUN-JUL	272	314	343	97	372	414	354
	JUN-SEP	407	458	493	97	528	579	506
	JUN-JUN	165	204	230	98	256	295	236
KLICKITAT near Glenwood	JUN-JUN	36	42	46	118	50	56	39
	JUN-SEP	64	74	81	116	88	98	70

### COWLITZ - LEWIS RIVER BASINS Reservoir Storage (1000 AF) - End of May

### COWLITZ - LEWIS RIVER BASINS Watershed Snowpack Analysis - June 1, 1998

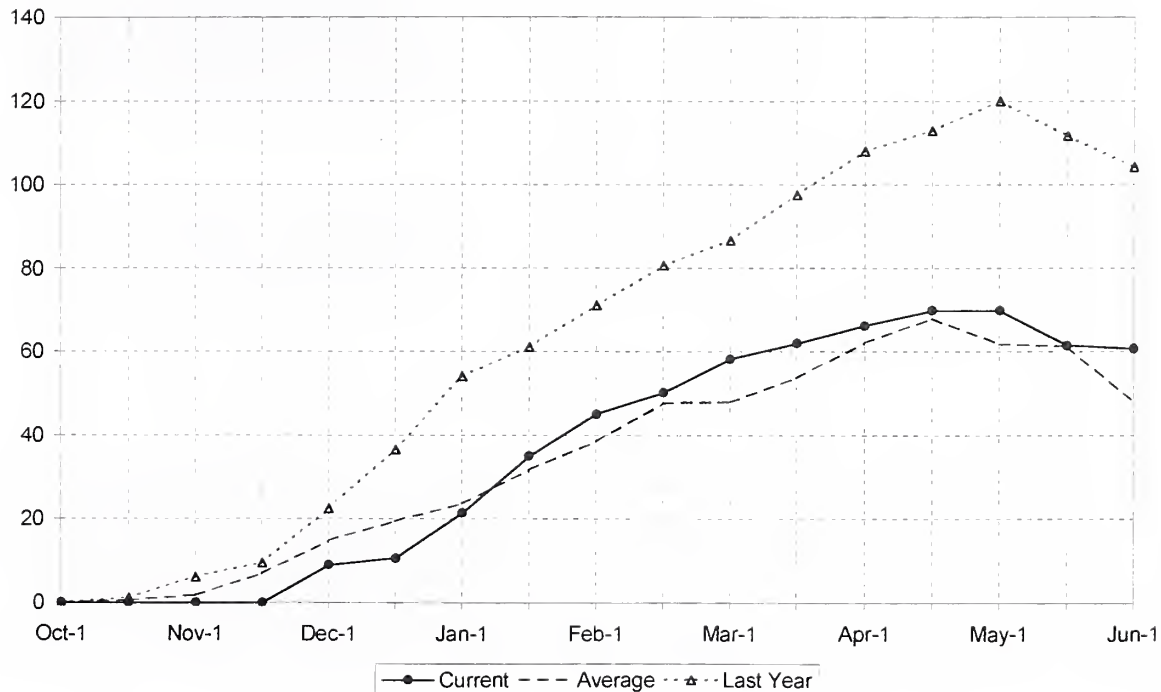
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					LEWIS RIVER	4	50	186
					COWLITZ RIVER	7	64	109

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

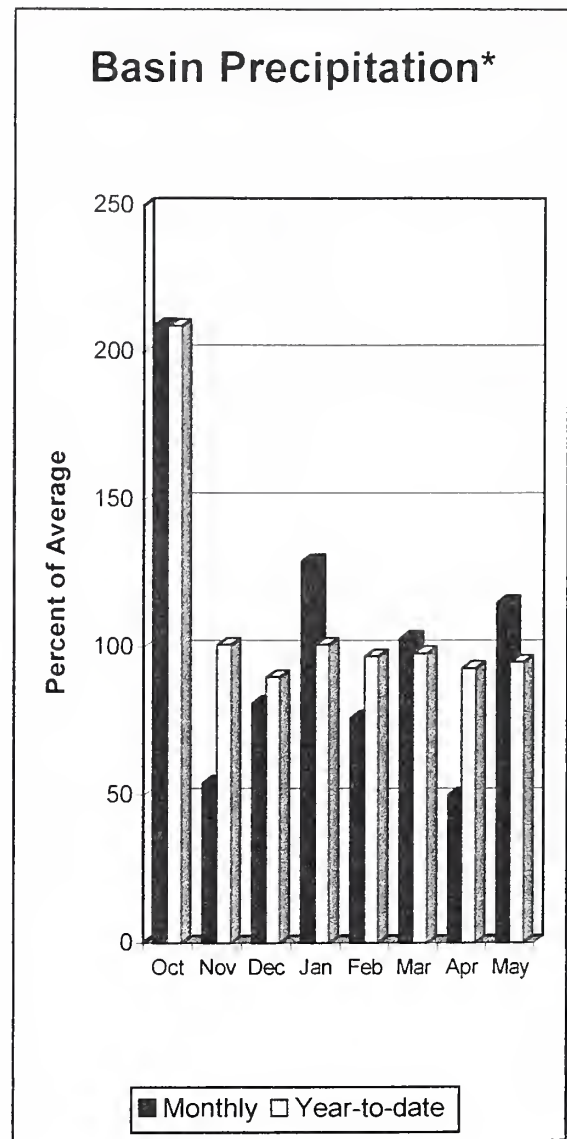
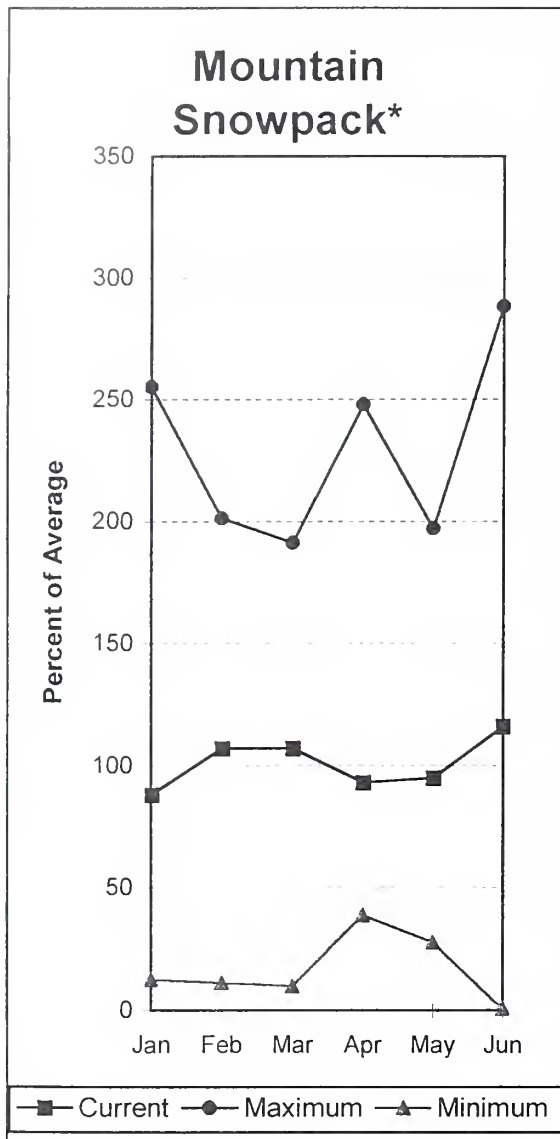
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Paradise SNOTEL Elevation 5120 ft.



# White - Green River Basins



\*Based on selected stations

Summer runoff is forecast to be 76% of average for the Green River. This is a slight increase from last month. The White River should see near to slightly below normal flows while the Nisqually River will most likely experience below normal flows this summer. June 1 snowpack was 138% of average in the White River Basin; and 95% in the Green River Basin. Water-content on June 1 at the Morse Lake SNOTEL, at an elevation of 5,400 feet, was 48.9 inches. This site has a June 1 average of 21.4 inches. May precipitation was 115% of average, bringing the water-year-to-date to 95% of average for the basins. May temperatures were slightly below average.

*For more information contact your local Natural Resources Conservation Service office.*



# White - Green River Basins

## Streamflow Forecasts - June 1, 1998

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GREEN RIVER below Howard Hanson Dam	JUN-JUL	29	47	59	76	71	90	78
	JUN-SEP	46	66	80	76	94	114	106
	JUN-JUN	16.8	32	42	76	52	67	55

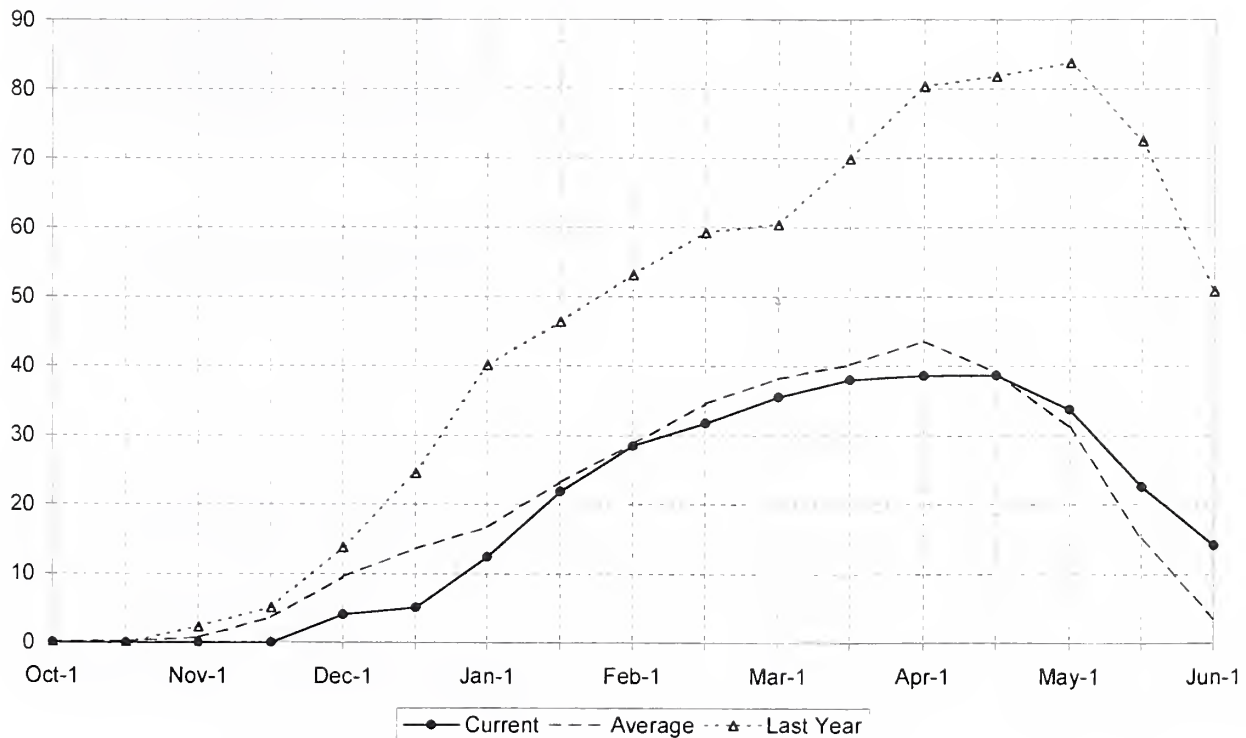
WHITE - GREEN RIVER BASINS					WHITE - GREEN RIVER BASINS			
Reservoir Storage (1000 AF) - End of May					Watershed Snowpack Analysis - June 1, 1998			
Reservoir	Usable	*** Usable Storage ***			Watershed	Number	This Year as % of	
	Capacity	This	Last	Avg		of	=====	=====
		Year	Year			Data Sites	Last Yr	Average
					WHITE RIVER	3	77	138
					GREEN RIVER	2	28	95

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

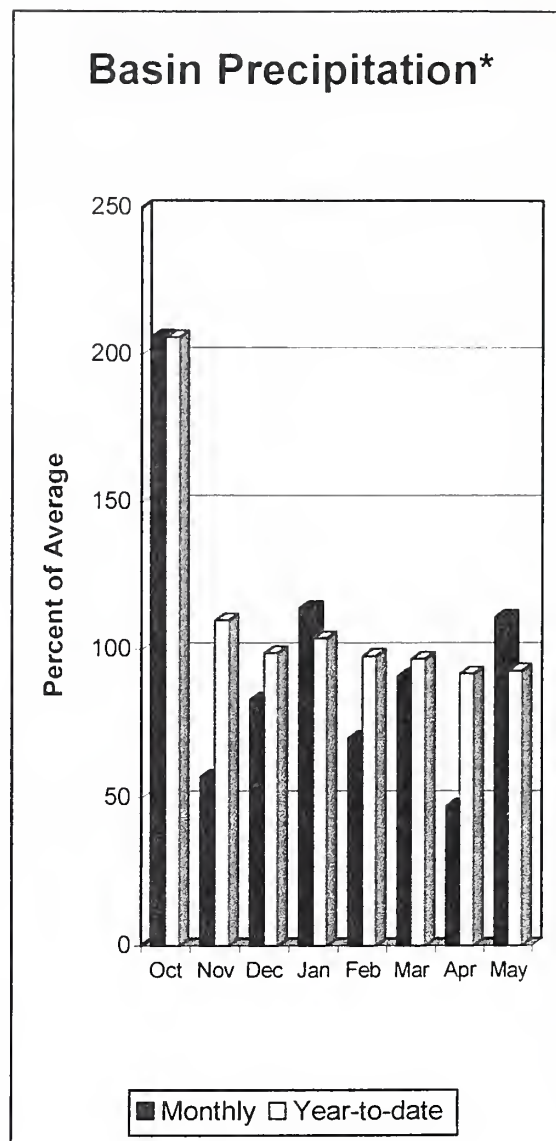
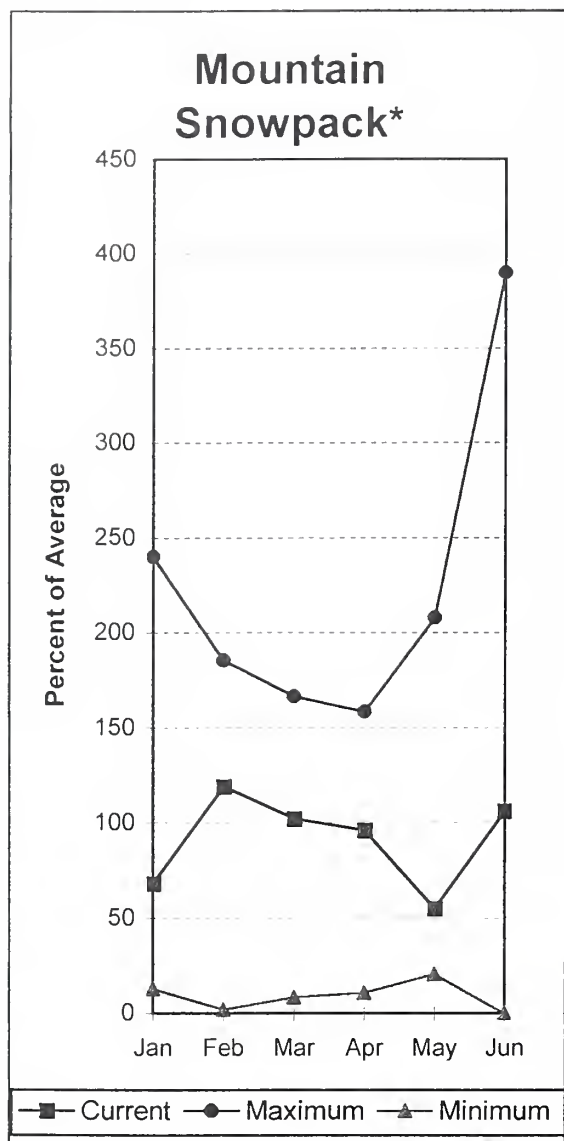
The average is computed for the 1961-1990 base period.

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 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Stampede Pass SNOTEL Elevation 3860 ft.



# Central Puget Sound River Basins



\*Based on selected stations

Forecast for spring and summer flows are: 76% for the Cedar River near Cedar Falls; 71% for the Rex River; 87% for the South Fork of the Tolt River; and 73% for the Cedar River at Cedar Falls. The Cedar River at Cedar Falls stream gage may be affected by upstream reservoir control. Basin-wide precipitation for May was 111% of average, bringing the water-year-to-date to 93% of average. June 1 snow cover in the Cedar River Basin had melted; the Tolt River Basin was 130%; the Snoqualmie River Basin was 91%; and the Skykomish River Basin was 104% of average. Alpine Meadows SNOTEL, at 3,500 feet, had 29.6 inches of water content. Average June 1 water content is 22.7 inches. May temperatures were 1 degree below normal.

For more information contact your local Natural Resources Conservation Service office.

# Central Puget Sound River Basins

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		90%		70%		Chance Of Exceeding *		30-Yr Avg. (1000AF)
		(1000AF)	(1000AF)	(1000AF)	(1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)
CEDAR near Cedar Falls	JUN-JUL	11.2	17.6	22	76		26	33
	JUN-SEP	14.8	23	28	76		33	41
	JUN-JUN	7.6	12.3	15.5	76		18.7	23
REX near Cedar Falls	JUN-JUL	1.72	4.63	6.60	72		8.57	11.48
	JUN-SEP	2.7	6.3	8.7	71		11.1	14.7
	JUN-JUN	1.34	3.40	4.80	73		6.20	8.26
CEDAR RIVER at Cedar Falls	JUN-JUL	7.6	12.3	15.5	74		18.7	23
	JUN-SEP	11.1	14.0	16.0	73		18.0	21
	JUN-JUN	6.1	11.1	14.5	75		17.9	23
SOUTH FORK TOLT near Index	JUN-JUL	3.81	4.82	5.50	87		6.18	7.19
	JUN-SEP	5.89	6.97	7.70	87		8.43	9.51
	JUN-JUN	2.29	3.13	3.70	88		4.27	5.11

### CENTRAL PUGET SOUND RIVER BASINS Reservoir Storage (1000 AF) - End of May

Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					CEDAR RIVER	4	0	0
					TOLT RIVER	2	61	130
					SNOQUALMIE RIVER	5	37	91
					SKYKOMISH RIVER	2	36	104

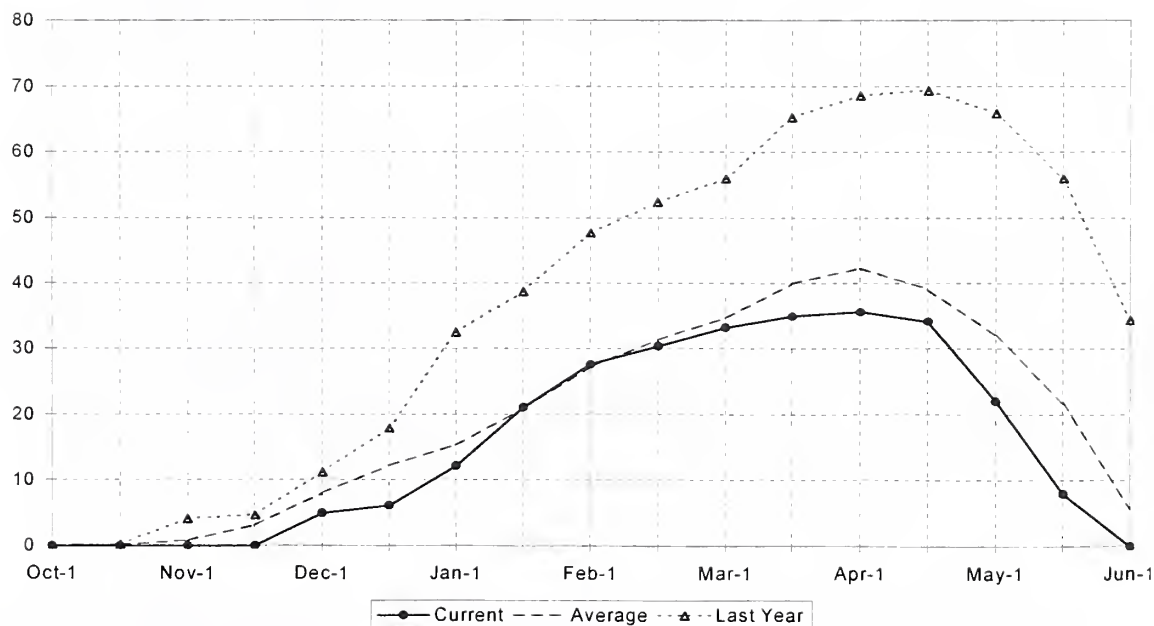
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

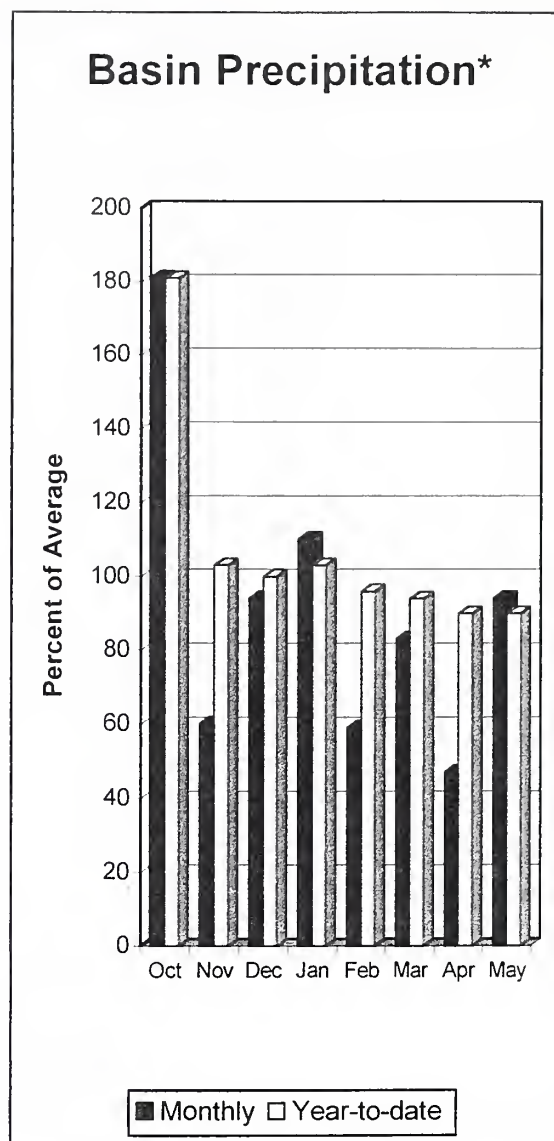
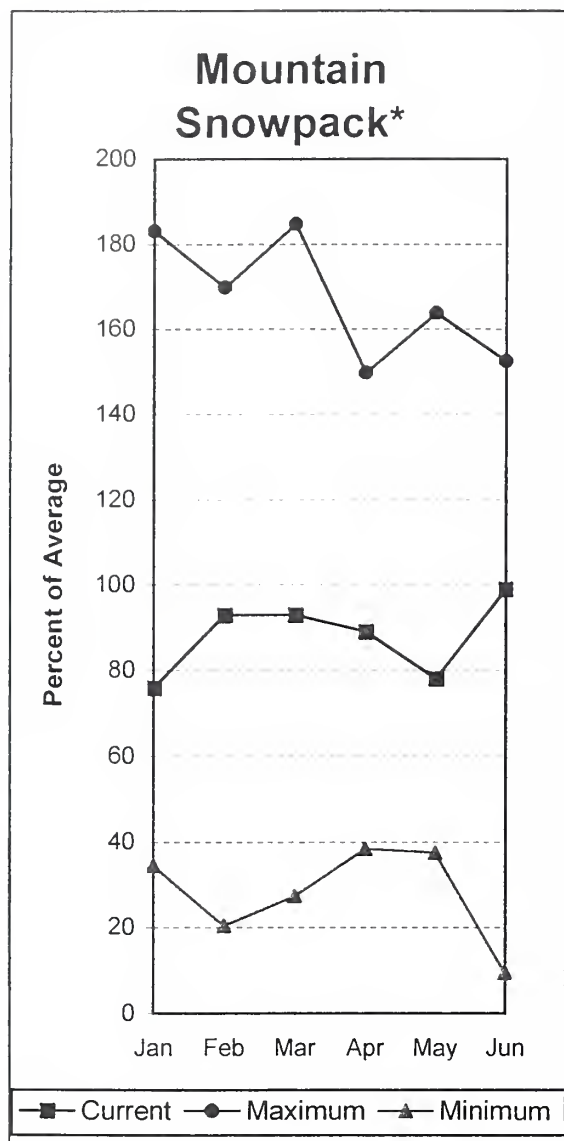
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

### Stevens Pass SNOTEL Elevation 4070 ft.



# North Puget Sound River Basins



\*Based on selected stations

Forecast for the Skagit River streamflow is for 88% of average for the spring and summer period. May streamflow in the Skagit River was 94% of average. Other forecast points included the Baker River at 86%; and Thunder Creek at 90% of average. Basin-wide precipitation for May was 94% of average, bringing water-year-to-date to 90% of average. June 1 snow cover in the Skagit River Basin was 95%; the Baker River Basin was 103%; and snow in the Nooksack River Basin was melted. Rainy Pass SNOTEL, at 4,780 feet, had 14.1 inches of water content. Average June 1 water content is 20.4 inches. June 1 Skagit River reservoir storage was 104% of average and 78% of capacity. Average May temperatures were about 1 degree above normal for the basin.

*For more information contact your local Natural Resources Conservation Service office.*



# North Puget Sound River Basins

## Streamflow Forecasts - June 1, 1998

		<<===== Drier ===== Future Conditions ===== Wetter =====>>						
Forecast Point	Forecast Period	Chance Of Exceeding *						30-Yr Avg.
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
THUNDER CREEK near Newhalem	JUN-JUL	119	132	141	88	150	163	160
	JUN-SEP	204	221	233	90	245	262	259
SKAGIT near Newhalem (2)	JUN-JUL	893	942	975	88	1008	1057	1106
	JUN-SEP	1073	1179	1250	88	1321	1427	1418
BAKER RIVER near Concrete	JUN-JUL	374	402	421	86	440	468	490
	JUN-SEP	588	604	615	86	626	642	717
	JUN-JUN	149	177	196	87	215	243	225

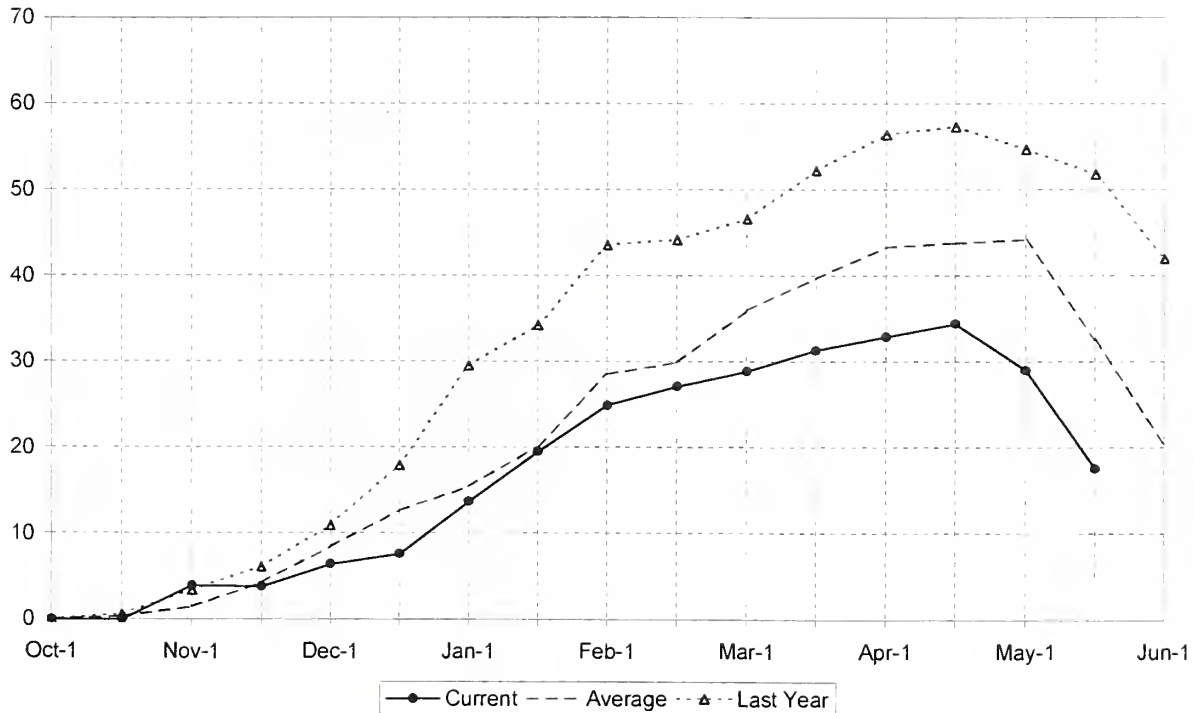
NORTH PUGET SOUND RIVER BASINS					NORTH PUGET SOUND RIVER BASINS			
Reservoir Storage (1000 AF) - End of May					Watershed Snowpack Analysis - June 1, 1998			
Reservoir	Usable	*** Usable Storage ***			Watershed	Number	This Year as % of	
	Capacity	This	Last	Avg		Data Sites	Last Yr	Average
		Year	Year					
ROSS	1404.1	1077.1	1185.9	1033.9	SKAGIT RIVER	3	54	95
DIABLO RESERVOIR	90.6	87.1	88.0	86.1	BAKER RIVER	2	70	103
GORGE RESERVOIR	9.8	8.2	9.1	8.3	NOOKSACK RIVER	2	0	0

\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

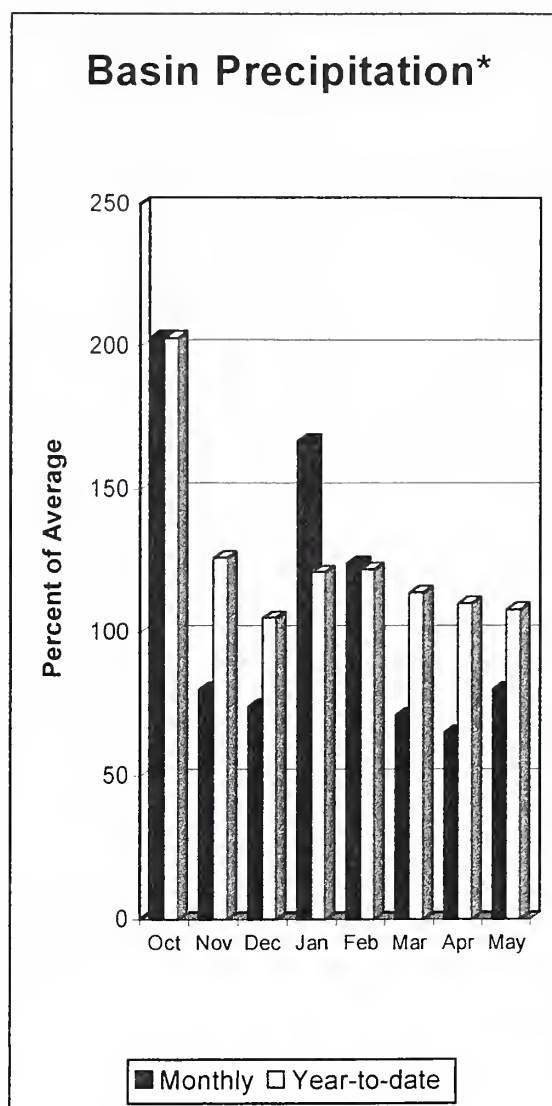
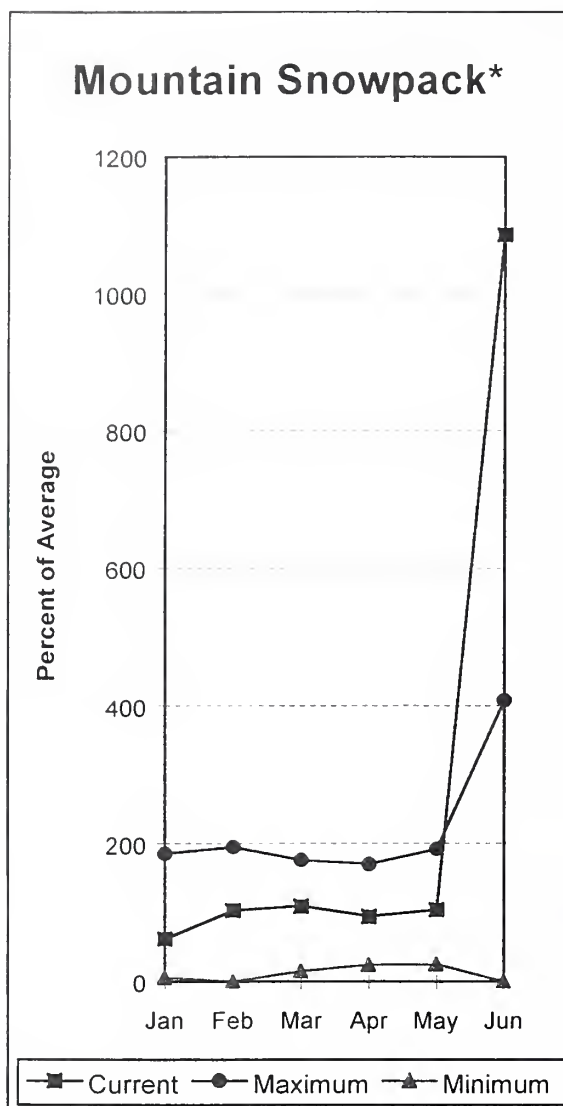
The average is computed for the 1961-1990 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.  
 (2) - The value is natural flow - actual flow may be affected by upstream water management.

## Rainy Pass SNOTEL Elevation 4780 ft.



# Olympic Peninsula River Basins



\*Based on selected stations

June forecasts of runoff for streamflow in the Dungeness River Basin are 93% of average and 90% of average for the Elwha River. The Big Quilcene and Wynoochee rivers can expect near to above average runoff this summer. May precipitation was only 80% of average (the lowest in the state). Precipitation accumulated at 108% of average for the water-year. May precipitation at Quillayute was 3.55 inches. The thirty-year average for May is 5.25 inches. June 1 snow cover in the Olympic Basin was at 1086% of average at the Mount Crag SNOTEL near Quilcene. Mount Crag had 15.2 inches of snow-water-equivalent on June 1. Average for this site is 1.4 inches. Temperatures were near average for the month.

*For more information contact your local Natural Resources Conservation Service office.*

# Olympic Peninsula River Basins

## Streamflow Forecasts - June 1, 1998

Forecast Point	Forecast Period	<<===== Drier ===== Future Conditions ===== Wetter =====>>						
		=====		Chance Of Exceeding *		=====		30-Yr Avg. (1000AF)
		90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	
DUNGENESS near Sequim	JUN-SEP	83	90	95	93	100	107	102
	JUN-JUL	61	66	69	93	72	77	74
	JUN-JUN	34	38	41	95	44	48	43
ELWHA near Port Angeles	JUN-SEP	252	273	287	90	301	322	319
	JUN-JUL	183	199	210	90	221	237	233
	JUN-JUN	100	116	127	92	138	154	138

OLYMPIC PENINSULA RIVER BASINS Reservoir Storage (1000 AF) - End of May					OLYMPIC PENINSULA RIVER BASINS Watershed Snowpack Analysis - June 1, 1998			
Reservoir	Usable Capacity	*** Usable Storage ***			Watershed	Number of Data Sites	This Year as % of	
		This Year	Last Year	Avg			Last Yr	Average
					ELWHA RIVER	0	0	0
					MORSE CREEK	0	0	0
					DUNGENESS RIVER	0	0	0
					QUILCENE RIVER	1	267	0
					WYNOOCHEE RIVER	0	0	0

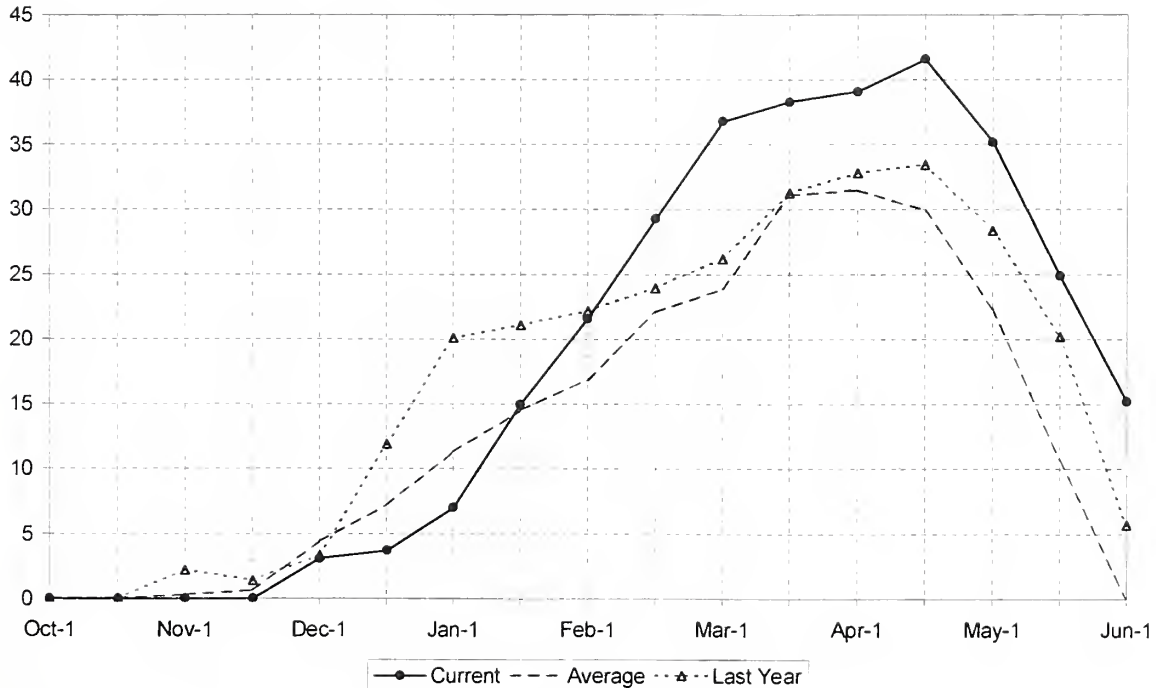
\* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural flow - actual flow may be affected by upstream water management.

## Mount Crag SNOTEL Elevation 4050 ft.









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Snow, Water and Climate Services

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**Helpful Internet Addresses**

**NRCS Snow Survey and Climate Services Homepages**

Washington:

<http://wcp.wsu.edu/nrcs/CoopSnoSrvy.htm>

Oregon:

<http://crystal.or.nrcs.usda.gov/snowsurveys/>

Idaho:

<http://id.nrcs.usda.gov/snow/snow.htm>

National Water and Climate Center (NWCC):

<http://www.wcc.nrcs.usda.gov/>

NWCC Anonymous FTP Server:

<ftp.wcc.nrcs.usda.gov>

**USDA-NRCS Agency Homepages**

Washington:

<http://wcp.wsu.edu/nrcs/>

NRCS National:

<http://www.ftw.nrcs.usda.gov/>



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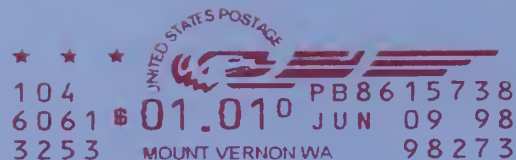
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## **The Following Organizations Cooperate with the Natural Resources Conservation Service in Snow Survey Work\*:**

<b>Canada</b>	Ministry of the Environment Investigations Branch, Victoria, British Columbia
<b>State</b>	Washington State Department of Ecology Washington State Department of Natural Resources
<b>Federal</b>	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
<b>Local</b>	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Company Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation Whatcom County Pierce County
<b>Private</b>	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association Whitestone Reclamation District

\*Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.



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